The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. LXI, NO. 14 CHICAGO, ILLINOIS OCTOBER 4, 1913

VAGINO-UTERINE PROLAPSE AND ITS EFFECTIVE TREATMENT *

E. E. MONTGOMERY, M.D., LL.D.
Professor Gynecology, Jefferson Medical College; Gynecologist to Jefferson and St. Joseph's Hospital
PHILADELPHIA

Vagino-uterine prolapse is a form of hernia through the vaginal outlet which may involve respectively the bladder and anterior vaginal wall, the anterior vaginal wall or the bladder and the cervix uteri; or the eversion may comprise cervix, or uterus, and the entire vaginal structure. The protrusion of the anterior pelvic segment is frequently a sliding of the bladder, pushing it before the anterior vaginal wall and dragging on the cervix where the uterus is firmly fixed as by firm ligaments and resistant peritoneum. The traction on the cervix causes a hypertrophic elongation of the supravaginal portion of the cervix. The anterior and posterior vaginal walls are attached to the cervix at different levels so that such an elongation may occur in the vesical portion of the cervix with complete eversion of the anterior vaginal wall and the cervix, while the posterior vaginal, remains intact and presents its normal length. Not infrequently, the hernia begins in the posterior wall as a protrusion of the rectum between the levatores ani by which the vagina is protruded or sacculated. Traction is made on the cervix which may lead to hypertrophic elongation, or to displacement of the entire uterus (Fig. 1). Not infrequently, also, the protruding rectum becomes adherent to the edges of the levatores ani and must be separated in order to permit the introduction of sutures for the interposition of the muscles. The prolonged continuance of this form of hernia leads to passive congestion, edema and thickening of the walls. The congested structures have decreased resistance and are exposed to more frequent injury through contact with the patient's clothing, friction against her limbs, soiling with urine and feces and other injuries. Patches of ulceration are frequent and when formed are slow to heal; the uterus is heavy, enlarged and sometimes irreducible; more frequently, however, the traction of the thickened tissues causes elongation of the supravaginal portion of the cervix while the body retains somewhat near its normal situation. In the great majority of cases, this condition occurs in women advanced in life, nearing or having passed the climacteric. In such patients the problem of subsequent gestation is not an essential factor but even in women during the child-bearing period, any operation for the successful retention of the protruding uterus and vagina is inconsistent with the *continuance of procreation. No operative procedure* has been devised for such a condition which will successfully endure the mechanism of a subsequent labor. Indeed, the changes produced in the uterus are such as to render conception improbable, and to make the uterus unable to develop in such a way as to offer a reasonable *probability that the fecundated ovum shall* find a proper soil and secure habitation to ensure completion of the pregnancy. When it is probable procreation will not be successful, there should be no hesitation as to the removal of the uterus. It is difficult to restore a uterus which has undergone elongation of its cervical portion to the proper relation with the other pelvic structures. It is a more or less crippled organ, capable of adding to the unhappiness of the situation.

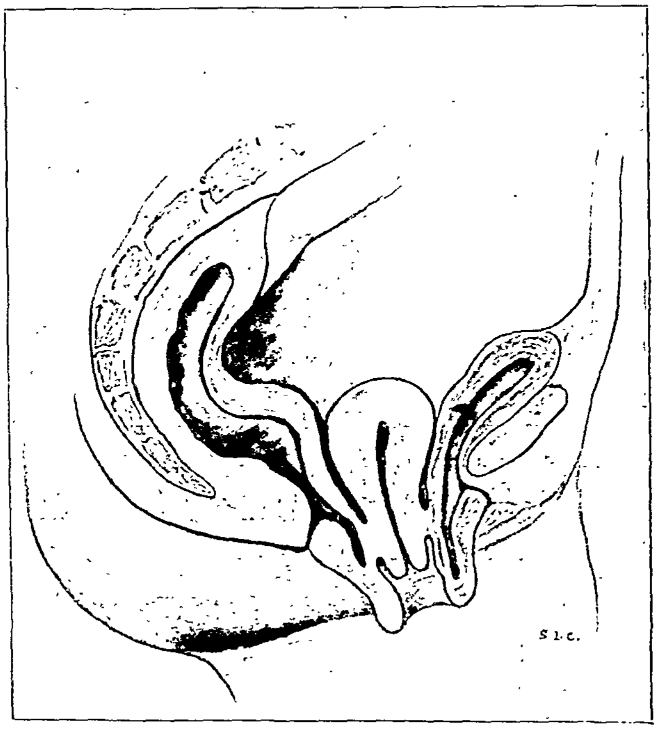


Fig. 1.—Vagino-uterine prolapse.

It is well appreciated that the discomfort and danger to the patient is lessened when the operative procedure can be confined to the vaginal route. The uterus in such cases is a needless organ—yea, worse than needless, a diseased organ—which affords lessened discomfort especially through its removal by the vaginal procedure; the more rapid convalescence and the greater security for permanent recovery *are ample reasons for resort to this* procedure.

The operation is commenced by the removal of a large section of the anterior vaginal wall; the bladder is widely pushed back from the retained portions, and separated from the cervix until the peritoneum is reached and opened. The posterior peritoneum is opened and the uterine and ovarian vessels ligated on either side, the broad ligament stumps held with clamp forceps and the uterus removed. In such cases, the retroperitoneal pouch has dissected downward covering an unusual portion of the anterior rectal surface and dragging down the rectum.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The peritoneum should be stripped off from the prolapsed rectum. when the hemostasis is complete, the recumbent patient should have the pelvis slightly elevated until the intestines slide out of the wound. A suture enters the anterior border of the left broad ligament, gathers up the peritoneum of the bladder, is brought out through the anterior margin of the right broad ligament, when its ends are secured by clamp forceps. A second suture passes through the posterior margin of the ligament and gathers up the peritoneum of the pouch of Douglas which we separated (Fig. 2). A third suture passes beneath the peritoneum of the upper surface of the left ligament, is carried through the wall of the bladder midway between the peritoneal reflexion and the vesical neck (lower if required), emerges from the right broad ligament in a similar manner to its entrance on the left. A fourth suture from the upper surface of the one ligament stump passes through the wall of the rectum from which the peritoneum has been stripped and out through the opposite ligament; each of these sutures has been secured by forceps, preferably by forceps of different sizes so that they can be easily differentiated. The tying of the first two sutures closes the peritoneal cavity. The remaining sutures when secured raise the prolapsing bladder and rectum. The stumps of the broad ligaments are made to overlap each other and the bladder and rectum are secured on their upper surfaces and beneath the peritoneum (Fig. 3). The anterior vaginal sections are secured to the broad ligament stumps and are closed over the bladder by transverse interrupted sutures. Each suture picks up the muscle wall of the bladder, thus obliterating dead space. A pledget of iodoform gauze is packed into the pelvis.

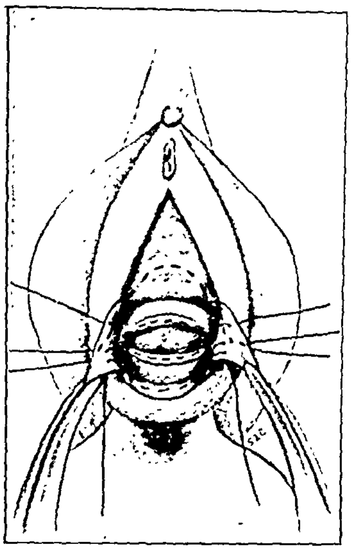


Fig. 2.—Sutures inserted for closing the peritoneum and lifting up the bladder and rectum.

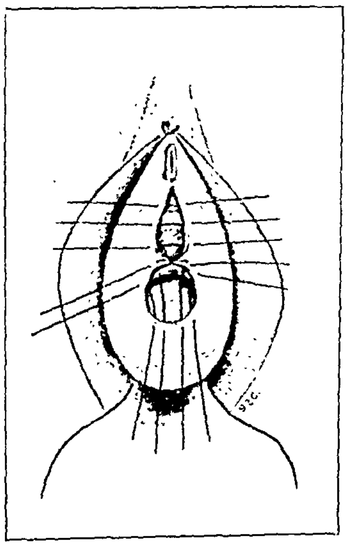


Fig. 3.—Broad ligaments overlapping beneath bladder and rectum. Sutures inserted to close the vaginal walls.

The operation is completed by dissecting a flap from the vulvovaginal margin upward on the posterior vaginal wall, largely by blunt dissection or pressing the tissue away from the vaginal flap with a gauze sponge until a suitable height has been reached, when a triangular portion of this mucous flap is excised. The sutures are so introduced into the edge of the levator ani muscle as to bring the structure from one side in apposition with its fellow in front of the rectum. When thus secured by three or four sutures, the margins of the vaginal walls are united by transverse interrupted sutures. Chromic catgut sutures are employed throughout and no effort is made to remove the sutures.

The operation has the following advantages:

1. The diseased, distorted uterus with its increased weight is removed.
2. Prolapse of both rectum and bladder is prevented inasmuch as they are supported on the upper surface of the broad ligaments.
3. The possibility of protrusion of the rectum, carrying with it the posterior vaginal wall, is obviated by the rectovaginal interposition of the levatores ani muscles.
4. The normal length of the vagina is maintained.

1426 Spruce Street.

PROLAPSE OF THE UTERUS *

FRANKLIN H. MARTIN, M.D.
CHICAGO

We were taught: "Keep the cervix of the uterus in the hollow of the sacrum and the rest of the organ will take care of itself."

This teaching is just as applicable now for prolapse of the uterus in the modern treatment of that condition as it was found for all kinds of displacements of the uterus, when these conditions were treated by pessaries and multitudes of "methods" of surgery.

The most modern and satisfactory operation for extreme descent of the uterus is undoubtedly the Dührssen-Watkins-Wertheim anterior transposition operation. This involves the placing of the fundus beneath the bladder and making a high restoration of the rectovaginal septum. This throws the uterus into extreme anteversion and places its fundus below the bladder—between it and the anterior vaginal wall. This, of necessity, turns the cervix backward and with a fulcrum of the highly restored levator ani muscles to act beneath it, it is still further shunted higher into the hollow of the sacrum with each attempt of the fundus to descend. This position of the uterus blocks the passage and the twisted broad ligaments shorten the central support and the hernia is cured by changing the presenting diameter of its contents.

This operation is ideal in women past the child-bearing period. In extreme cases, it is doubtful if one would not be justified in rendering the woman sterile by interrupting the tubes, in order to make the operation available for prolapse in child-bearing women. This I have done.

Recently, on several occasions, I have modified the steps of the Watkins operation to make it available to younger women.

In the first step of the old operation, after making the longitudinal incision through the anterior vaginal wall in order to elevate the bladder and to expose the fundus for delivery, there are always observed two strong fascial bands extending from the pubis beneath the lateral

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

walls of the vaginal mucous membrane, which extend to the cervix. They are the stretched-out remains of the pubocervical or the vesical uterine ligaments. The prolapsing bladder has descended between them. By a rapid dissection these fascial bands can be separated from the lateral walls of the vagina and their outer edges will be found to coalesce with the strong middle diaphragm or fascia of the pelvis.

In the operations I have done, after these fascial bands are dissected free, the bladder is carefully elevated to a level of the top of the fundus of the uterus. The cervical ends of these bands are severed, appropriately shortened on their cervical ends, and after being crossed in order to make a support for the bladder, the ends are securely transplanted into the fundus of the uterus just in front of the crest. The vaginal wall is closed, after its superabundance is removed, in a manner to maintain or increase its long diameter, and to eliminate the dead space caused by elevating the bladder.

Previous to this step, the fundus has been exposed, and when the case of prolapse has been a severe one, and the fundus is easily delivered, I examine by inspection, by means of a broad long-bladed retractor placed above the delivered uterus, the sacral folds of peritoneum containing the vestige of the sacro-uterine ligaments. These folds are often easily seen and felt, appearing as long flaccid folds of peritoneum. A pair of rounded, slightly curved, 8-inch artery clamps, guided by sight and touch, are thrust through the base of each broad ligament, on a level of the internal os and from a point in front of the cervix from within the longitudinal vaginal incision, into the culdesac of Douglas. The forceps are then opened in order to enlarge the tunnel through which they pass, and they are each made to grasp the sacro-uterine fold at a point about one-third distance from its uterine end, and this fold is drawn through the route of the forceps on either side of the cervix, while the cervix is pushed upward and backward on the doubled peritoneal fold until the forceps have withdrawn the apices of the two folds to the point of the cervix. The cervix is pushed well back on these folds after the grasp of the forceps is renewed. This not only carries it backward, but upward. The folds of the superabundance of ligament are then securely united in front of the cervix. The appendages of the uterus are inspected and the fundus fixed, as heretofore described.

With this form of operation, a successful result depends much on the form of the perineorrhaphy.

In prolapse cases it is often forgotten that the posterior vaginal wall mucous membrane becomes atrophied in its longitudinal direction. An attempt to restore the cervix to its high position in the hollow of the sacrum will reveal a distinct pull on the cervix on the part of this atrophied vaginal wall. This pull may prove diastrous to the stability of the replaced uterus.

In these same cases, too, the levator ani muscles are defective in effecting their normal support, either because of being torn, because of an undeveloped condition, or because of being displaced laterally by the forces of childbirth. In each of these cases, the anus is unsupported and sags below the normal level, and the lower rectum pushes forward the vaginal mucous membrane in a rectocele.

The perineorrhaphy that I attempt to do in these cases effectually corrects these conditions: that is, it lengthens the posterior vaginal wall and takes the pull off the cervix; it brings together the defective levator ani muscles between the reconstructed vaginal wall and the rectum; it elevates the anus and obliterates the rectocele by elevating the end of the lower bowel; it places the reconstructed levator ani muscles directly beneath the elevated cervix, and thus gives it no opportunity to begin a descent.

I received the idea of this operation in witnessing a somewhat similar procedure at the Mayo Clinic. In its essentials, it is a flap-splitting operation. In detail, with its modifications as I perform it, it is as follows:

The ordinary horseshoe incision is made, extending to the side of the vulva and across the septum between the vagina and anus. The portion of the mucous membrane at the center of the septum is separated from the rectum for about one inch; the remainder of it is allowed to retain its attachment. Then a high dissection is made on either side of the vagina and the vaginal rectal space until the levator ani muscles are definitely exposed. The vaginal mucous membrane flap is now grasped at its middle point with a long pair of forceps, and the free straight border of the vaginal flap is converted into an acute triangle with the central portion grasped by the forceps as the apex and the two sides of the triangle extended longitudinally into the vagina by carrying the portion grasped by the forceps in a direction away from the perineum toward the cervix and the vault of the vagina. This maneuver elevates the lower end of the rectum by the pull on the centrally attached mucous membrane of the vagina and allows the levator ani muscles to be brought together in the central line beneath the elevated rectocele and the extended posterior wall of the vagina. The two sides of the angle of the mucous membrane of the vagina are now united in the middle line, making a seam extending from the new vaginal edge to the elevated tip of the vaginal mucous membrane which constituted the apex of the triangle. The skin over the perineum is next closed by extending the simple catgut suture which closed the longitudinal line in the posterior vaginal wall.

When this operation is done for prolapse, I avoid, whenever it is possible, amputation of the cervix, as I desire to have that projecting portion of the uterus riding well back of the reconstructed perineum to aid in preventing the uterus paralleling the vagina.

THE ANATOMY AND SURGICAL UTILITY OF SACRO-UTERINE LIGAMENTS *

GEORGE B. SOMERS, M.D.
AND
F. E. BLAISDELL, M.D.
SAN FRANCISCO, CAL.

The sacro-uterine ligaments, from an operative standpoint, attract very little attention. While they have been the object of occasional study, neither their limitations nor their extensions have been fixed so as to give them a definite place in surgery. The general impression seems to be that they are difficult of access and both structurally and mechanically of doubtful surgical utility.

HISTORY

From 1902 to 1906, Bovée[1] published a series of articles calling attention to the sacro-uterine ligaments.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Bovée: Am. Gynec., July, 1902.

His bibliography shows that as far back as 1850 efforts were made to utilize the ligament in the treatment of retroversion of the uterus. In 1902 he gave an interesting historical account and described the various methods proposed for shortening the ligaments. The technic of these operations, whether the mode of approach was through the vagina or through the abdomen, consisted of folding or doubling the ligaments without actually isolating them. Bovée, however, exposed them by making an anteroposterior incision in the vault of the vagina and dissecting them out. He doubled each on itself and sewed the loop thus formed to the cervix below the normal point of insertion of the ligaments. The incision in the vagina originaly made longitudinally was then sewed transversely, which procedure assists in raising the cervix.

In appropriate cases, this is an easy and effective operation. While Bovée's articles attracted considerable attention at the time they were published, the profession has shown no sustained interest in the ligaments as surgical possibilities. The reason is probably because their mechanical importance is not generally understood. Furthermore, none of the operations proposed has appealed to surgeons as clear and mechanically sound methods of utilizing them.

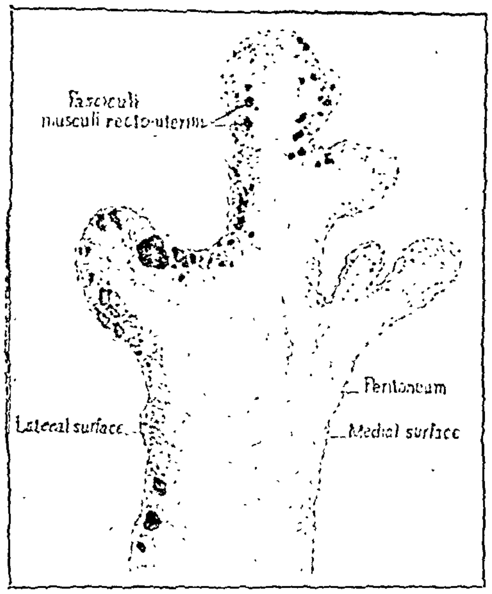


Fig. 1.—Transverse section of rectovaginal fold of Belgian hare.

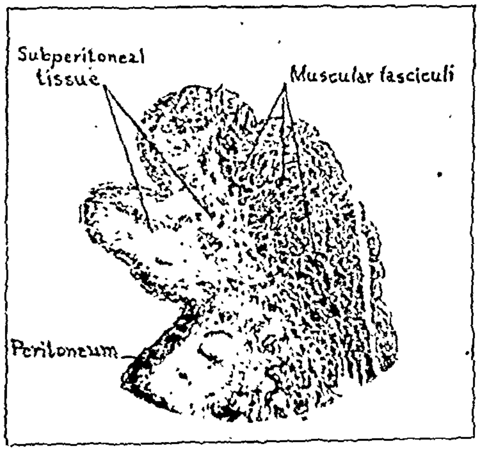


Fig. 2.—Transverse section through right recto-uterine fold in anterior part of middle third of child of 10 years.

In August, 1911, Jellette[2] of Dublin described a new operation for shortening the sacro-uterine ligaments. This article, to my mind, establishes their surgical value, for it demonstrates an easy and practical method of exposing, isolating and utilizing them as mechanical supports. With this advanced step in perfecting the technic of operating, I believe that shortening them should be accepted as one of the standard methods of treating retroversion and prolapse.

In order to judge whether or not utilization of these ligaments for this purpose is practicable, it is natural to turn to a consideration of their structure, relations and functions.

At my suggestion and for the purposes of this paper, Professor Blaisdell of the Division of Anatomy of Stanford University has made a special study of these structures. Although originally only a brief survey was planned, so many interesting problems were uncovered that his work has grown to monographic proportions and will be published later. The chief practical points of these observations will be given below.

A comparison of authorities leaves one in doubt as to what really constitutes the sacro-uterine ligaments. There are three structures involved—muscle, fibro-elastic tissue and peritoneal folds. So intimately related are they that authorities differ as to which should be included and which excluded from the true ligaments. The present study was taken up chiefly to arrive at a clearer understanding of the relations and functions of these tissues.

COMPARATIVE ANATOMY

Considerable light is thrown on the ligaments by observing their analogues and homologues in the lower animals. Here they appear in their simplest forms and one is able to follow the changes from the simple to the more complex. This fact led to the study of a comparative series of animals consisting of guinea-pig, Belgian hare (Fig. 1), cat, dog, and monkey. In this series the parametrial tissue, ligaments and folds were cut in serial sections and subjected to careful histologic analysis.

While each specimen in the series presented interesting differences, the general structure of the tissues under observation was practically the same in all. The condition found in the cat affords a fair example of the series examined.

In animals which habitually assume the horizontal position the uterus is either double or bicornate. It is long and slender and its weight is distributed along an extensive peritoneal attachment, often as far forward as the kidney. This arrangement requires only slight support from the peritoneal folds. There is no need of true or fibrous ligaments. The folds of peritoneum acting as ligaments are very thin and transparent and any fibrous or muscle tissues that may be found in them are only rudimentary structures.

If the bicornate uterus of the cat be pulled ventrad so as to expose the pouch of Douglas, two well-marked folds of peritoneum are seen, in the situation corresponding to the sacro-uterine ligaments. They run on either side of the pouch of Douglas ventrad dorsad, but it will be noticed that the folds are not sacro-uterine, but rectovaginal, inasmuch as they run only from rectum to vagina instead of from sacrum to uterus. In none of the lower animals does this ligament show any disposition to connect sacrum and uterus.

MICROSCOPIC STRUCTURE

A transverse section of one of these folds shows under the microscope an interesting condition. In all the animals examined the peritoneum forming the fold was much thicker than the surrounding peritoneum. This hypertrophy was confined chiefly to the fibrous layer or stratum fibrosum. Within this fibrous layer, and therefore distinctly within the peritoneal structure, were found a number of small fasciculi of unstriped muscle fibers. They originate from the uterus, pass first to the fold attached to the vagina and remaining within the fibrous layer of the peritoneum pass backward toward the rectum.

The observation of muscle fibers within the structure of the peritoneum itself is thought by Blaisdell to be new. The muscle fibers found in the ligament are usually described as lying between the layers of the peritoneal fold and are called the recto-uterine muscle, but, as will be shown later, these fibers constitute a separate structure with a well-marked levator function. It is accordingly suggested that they be called the levator uteri muscle to distinguish them from the true recto-uterine muscle.

---

[2] Jellette: Surg., Gynec. and Obstet., xiii, No. 2.

The muscle fibers situated within the structure of the peritoneum constitute the true recto-uterine muscles. They are found not only in animals but also in the human female. The thickened musculofibrous structure forming the rectovaginal folds in the lower animals are primitive and the sacro-uterine folds in women are the same in histologic structure and function.

In the lower animals, the space between the peritoneal layers of a fold contains principally areolar tissue. The muscle fasciculi and fibro-elastic tissue so abundant in the human female are absent or only rudimentary.

Monkey.—Emphasis is laid on the thin, transparent nature of the peritoneal folds in the lower animals and the small amount of weight supported by them. With the assumption of the upright position, the uterus and its appendages sink down into the pelvic cavity and contract into a solid mass. With increased concentrated weight, there is demand for firmer support and we find, coincidently, the development of abundant fibro-elastic and muscle tissue within the folds. In the monkey, for instance, the uterus is undivided and the anatomic conditions are similar to those in women. Here, with the sinking down of the uterus, we find the rectovaginal fold changes to a sacro-uterine and in other respects the structures are human in character, but to a less marked degree.

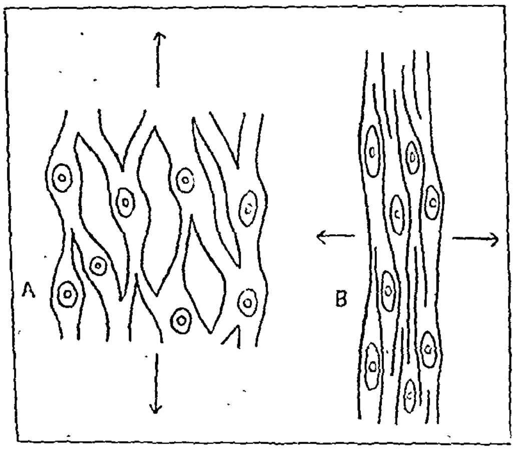


Fig. 3.—Fibro elastic meshwork which forms (a) potential, (b) temporary sacro-uterine ligament.

Woman.—In examining the sacro-uterine ligament in the human female we find that it is much thicker, stronger and more prominent than its homologue in the lower animals. A cross-section shows it to be composed of three main structures: (1) a thickened peritoneum, (2) a fibro-elastic meshwork, and (3) muscle fasciculi. These component parts will be considered separately.

PERITONEAL FOLDS

In the lower animals, the peritoneal structure alone is prominent. The muscle fasciculi and fibro-elastic tissues are only rudimentary. In woman the folds which cover the sacro-uterine ligaments vary considerably in prominence. Sometimes they are only potentially present and appear only when traction forward is made on the uterus. At other times, they may be traced by the eye throughout their course.

Posteriorly, the folds vary in their attachment, sometimes being connected with the rectum and sometimes with the sacrum. Whether the fold becomes recto-uterine or sacro-uterine depends on variation in the position, size and attachment of the rectum. If the rectum is large both folds may be recto-uterine. If the rectum is small, and especially if it has a mesentery, the folds will be sacro-uterine. If the rectum is located to one side, the adjacent fold may be recto-uterine and the opposite sacro-uterine.

Another marked feature of the peritoneum is that traction forward on each sacro-uterine fold usually raises the surface into a series of ridges. The meaning of this is that the peritoneum has a direct attachment to the fibers beneath. This attachment was demonstrated by microscopic examination and the fibers of the underlying meshwork traced to the fibrous stratum of the peritoneum. This connection adds considerably to the strength of the true sacro-uterine ligament.

FIBRO-ELASTIC MESHWORK

Beneath the plicae sacro-uterinae, and filling all that space about the uterus called the parametrium, there is found a dense fibro-elastic meshwork. This tissue consists of interlacing fibers ensheathing the vessels and nerves. Careful dissection shows that it is attached to the fascia of the levator ani below, the obturator fascia laterally and the peritoneum above. The general course of these fibers is from the cervix toward the presacral fascia, spreading out to the various points of attachment. It will be remembered that this tissue, while abundant in the human female, is practically absent in the lower animals. Its appearance is coincident with the assumption of the upright position and its function is both to protect and to support. In fact, it may be called the fibro-elastic suspensorium of the uterus.

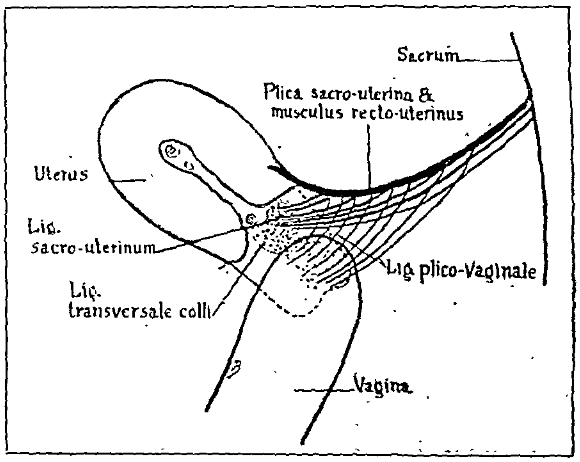


Fig. 4.—Diagram showing origin and attachments of sacro-uterine ligament.

In a state of rest, the fibro-elastic tissue remains a diffuse network. When traction is made in any direction, condensation occurs along the line of traction and the fibers are thrown into a bundle forming an elastic cord. Remove the traction and by virtue of inherent elasticity or resiliency the tissue resumes its meshwork character. The sacro-uterine ligament is formed from the meshwork by traction in this manner.

MUSCLE FIBERS

The fibro-elastic meshwork about the uterus is interlaced with numerous fasciculi of smooth muscles. These are more abundant close to the uterus than in the more distinct parts, inasmuch as they originate from the uterus. They are the cause of the dense or cord-like character of the *sacro-uterine* ligaments and also of the so-called cardinal ligaments which pass off from the sides of the uterus at the base of the broad ligaments.

These fibers by contraction and by pulling on their attachments to the fibro-elastic meshwork have the power of raising the uterus. They evidently act in response to reflex stimuli. Inasmuch as these muscle fasciculi form a separate structure with a distinct function it is suggested by Blaisdell that it be called the levator uteri muscle.

PLICOVAGINAL LIGAMENT

In studying the course of the fibro-elastic meshwork within the peritoneal folds, it was demonstrated that a distinct mass of fibers ran from the anterior two-thirds of the sacro-uterine fold (plica sacro-uterina) down to the vault of the vagina. The function of these fibers is clearly to sustain the vault-like character of the lateral and posterior fornices.

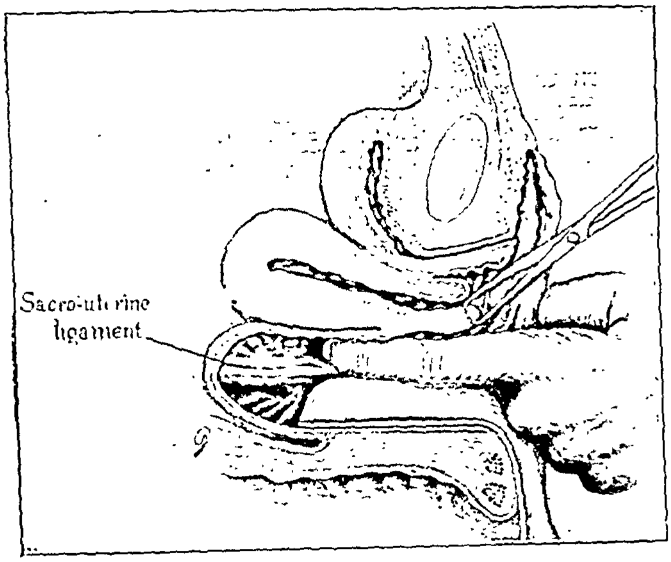


Fig. 5.—Palpation of ligament.

As they are ligamentary in function and have distinct points of origin and insertion it is suggested that the structure be called the plicovaginal ligament.

SACRO-UTERINE LIGAMENT

The true sacro-uterine ligament is quite distinct from the peritoneal folds and from the muscle fibers found between the folds. It is formed from the diffuse fibro-elastic meshwork. It differs much from our ordinary conception of a ligament inasmuch as it is not a permanent cord, but only potentially so. In function the ligament is inseparably connected with the peritoneal folds and the muscle fasciculi. Acting together the three structures have both a supporting and an elevator function.

The thickened musculo-fibrous character of the peritoneal folds renders them chiefly supporting.

The fibro-elastic meshwork through its inherent elasticity and resiliency restores the uterus and vaginal vault to their normal position when pushed or pressed down.

The bundles of muscle fibers forming what has been called the levator uteri, by their contractility, raise the uterus in response to reflex stimuli.

It is hardly necessary to compare the supporting value of the sacro-uterine ligaments with that of other uterine ligaments. Their importance is indicated by their structure and conceded by most authorities. Bovée insisted on their value in this direction and Goffe[3] has made the statement that the sacro-uterine ligaments are the most *rational structures we can use for restoring the uterus to its normal position.* The truth of this remark is readily revealed when we attempt to answer the question, What will support the vaginal vault if the sacro-uterine ligaments fail?

SURGICAL UTILITY

Granting the supporting value of these ligaments, it becomes surgically important to determine whether they may be utilized practically, as, for instance, in restoring the prolapsed uterus and vagina. The surgical utility of these structures depends on (1) their accessibility, (2) on whether their ligamentary character is definite enough to allow of shortening and (3) whether shortening is mechanically effective.

Accessibility.—In relaxed vaginal outlet and in severe cases of prolapse the ligaments are easily reached. If the cervix be drawn down with a volsellum, the cord-like ligaments, may be easily felt with the examining finger. They may be outlined and their size relations and point of insertion into the cervix determined. The simplest method of exposing them after they have been located is to make a circular incision about the cervix as proposed by Jellette and dissect back the cuff of mucosa until the insertions may be plainly seen. They may then be isolated by blunt dissection, and even cut away from the uterus if deemed necessary. In cases of prolapse, I have been in the habit of exposing them by removing a small triangular flap posterior to the cervix. This procedure not only gives access to the ligaments but at the same time allows for transposition of the cervix to a higher position.

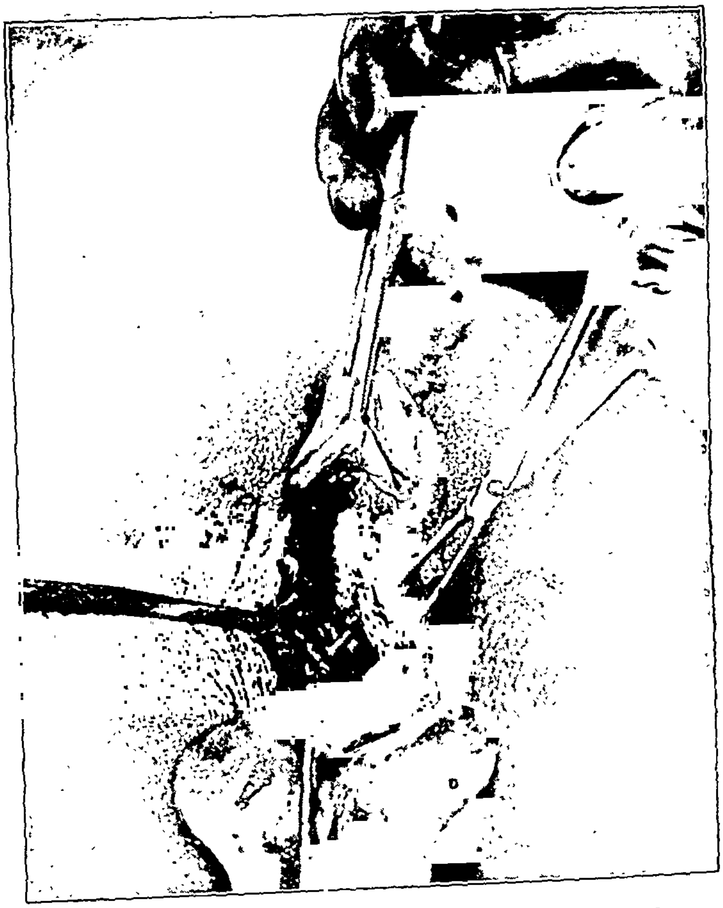


Fig. 6.—Sacro-uterine ligament exposed and isolated.

Ligamentary Character.—After exposure they may be isolated by pushing a clamp beneath them. By further dissection they may be completely separated from the uterus. They appear to the eye like loose bundles of muscle fibers forming a cord of considerable size and length, which may be manipuated as a ligament.

---

[3] Goffe: The Journal A. M. A., July 5, 1902, p. 16.

MECHANICAL UTILITY

After exposing the ligaments a few tests will show that they may be doubled on themselves as proposed by Bovée; sewed to each other as proposed by Byford or separated from their attachments and sewed to a new position as proposed by Jellette. Shortening is attained by any of these methods and the practical result of lifting the cervix follows as a matter of course.

The strength of the ligament is sufficiently attested by its size and resistance to tension. When it is remembered that the fibro-elastic meshwork from which the ligament is derived has a very broad attachment to surrounding fascia, and especially an insertion into the musculofibrous layer of the peritoneal fold, its ability to hold up the cervix becomes self-evident.

CONCLUSION

In conclusion, the object of the above study has been to arrive at a clearer understanding of the anatomy and surgical value of the sacro-uterine ligaments. I have had the opportunity of operating on these ligaments ten or twelve times, and as a result of both study and experience feel (1) that they are worthy of more general attention; (2) that the operation of shortening them is both practicable and successful, and (3) that it is particularly indicated when retroversion or prolapse is accompanied by relaxed vaginal vault.

Lane Hospital—1520 Lake Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MARTIN, MONTGOMERY AND SOMERS

Dr. A. E. Benjamin, Minneapolis: This subject is a very important one. Operators have different points of view. One man has corrected this prolapse by the vaginal route, another by the abdominal. It is for the purpose of crystallizing our ideas and coming to some definite understanding regarding the proper position of the uterus and the underlying factors that we discuss the matter fully. I think most of us should study anatomy more thoroughly and especially the anatomy of the female pelvis, if we are to understand why we have prolapse and do this work properly. What is the mechanism and what are the factors necessary for the proper position of the uterus, and why do we have prolapse or misplacement of this organ? When we arrive at a thorough understanding of this subject our opinions will differ but little. I agree with what Dr. Martin has said in regard to prolapse in women past the menopause. The Watkins-Wertheim operation is satisfactory and I have had more women return to me expressing their gratitude for the results of this operation than for those of any other perhaps. It seems to be founded on the right principle, taking into consideration the anatomic structures and elevating the rectum which is prolapsed and in which we have a rectocele. It elevates the prolapsed bladder and does not interfere with its function. There is not the pain and discomfort so often encountered if the bladder is not properly replaced. Dr. Martin's idea of fastening the fundus a little higher up on the bladder and the use of the uterovesical ligaments is one we should all recognize, so that our patients who have not passed the menopause may have the benefit of this method. It has been most difficult to get a uterus to stay in place after prolapse in women past the menopause and especially when the tissues have atrophied. One feature which we must consider is the intra-abdominal pressure. Very few of these uteri will prolapse if there is not a force above pushing them down.

Dr. William M. Polk, New York: The difficulty in dealing with the questions that have been presented grows out of the fact that we have so many admirable operations devised for this troublesome condition. Is this a hernia? If so, how does it compare with other hernias, and which is the best way of meeting the difficulty? There are certain general principles that we all recognize as accepted in all cases of hernia. First among these is the principle that the peritoneal support shall be of the first order. Unless we take care of the sac, no matter how skilfully the operation is performed, it is worthless. The weak point in the pelvis is the region of the bladder; the strong part, the region of the sacrum. If we can overcome the tendency to weakness in the bladder region, we can solve the question of prolapse. In spite of the variety of methods, however, there is ample room for all, because the varieties of procidence are almost infinite. Not only are each and all subject to different methods of procedure, but the condition of the patient also must always exercise a potent influence on the measure it is proposed to adopt. A woman of 60 whose tissues have undergone fatty degeneration is not in condition to make good an operation applicable to a woman of 30. There are conditions of congenital defects in these muscles which make certain procedures difficult in certain women. In certain women no changes have taken place in the levator ani muscles that make it a difficult matter to build the support from below. In others, especially the obese, the structures to which surgical skill is applicable are from the outset defective. There is no doubt, therefore, that in these various conditions presented to us we shall find the appropriate operation among those suggested. The beginnings of prolapse are always easy to correct. Operators should bear in mind that not only is it essential to have support from below, but that it is also of the highest importance that there is resistance from above. It must be understood also that the region of defect is to the front of the uterus rather than behind it. While every effort should be made to strengthen the support of the uterus, notably the use of the sacro-uterine ligaments, without adequate attention to the anterior supports of the uterus all measures will be in vain. Therefore, the anatomic and pathologic problem to be faced is this, that when prolapse begins, it begins from below posteriorly by lessening of the support there, but that in a short time the prolapse is increased by the insufficiency of the support above. Every measure should be resorted to that will shorten and make shallow the peritoneal surface that lies between the uterus on the one hand and the symphysis pubis on the other. There are a number of these procedures.

Dr. Walter B. Dorsett, St. Louis: We must consider the subject from the point of view of physiology as well as from that of pathology. We have to judge as to what constitute the natural and normal supports of the uterus. In my opinion each has its special function to perform. Aside from the different ligaments that support the uterus, we must not lose sight of one of the most important factors in the natural position of the uterus, and that is the intra-abdominal pressure. The intra-abdominal pressure on the uterus is on the posterior wall when it is in its normal position and on its anterior wall when it is retroverted. The deviation from the normal allows the uterus to sag down and feed itself, as it were, into the vagina. The uterine sacral ligaments are, so far as I have been able to observe by section and by digital examination, unimportant factors in the support of the uterus, and we must study them from a physiologic and from a pathologic standpoint. Dr. James N. West discussed this question in 1904. He proved experimentally that the uterosacral ligament does not enter forcibly into the consideration of the support of the uterus.

I wish to call attention to the different actions of tissues composing ligaments and those composed chiefly of muscle in the cadaver when subjected to strain. In cases of retroflexion with congestion of the body of the uterus, the uterosacral ligaments hold the uterus in a retroflexed condition, and I dare say that all of us, in examining these cases, when we have passed the two fingers into the posterior vaginal fornix and made pressure, have felt it slide up beyond these ligaments and out of our reach. I believe that in these cases of retroflexion, the uterosacral ligament holds the uterus in a retroflexed position, but I do not believe that it has an important rôle to play in holding it in position, because of the fact that peritoneal tissue and very little muscle tissue hold it in place. I have never done the operation. I do not believe that it is a good operation, however, for the reason that it is done through the vagina. If such a condition could be brought about through the abdominal wall by making a folding of the round ligament on itself, if it had sufficient muscle tissue to hold it there, I believe that the operation would be a good one.

Dr. J. Riddle Goffe, New York: I have utilized the uterosacral ligaments for many years and I am a firm believer in their utility. Dr. West, in describing his experiment by which the uterine ligaments were put on the stretch, said that the uterosacrals were the first to show tension. That is evidence of their relative importance in maintaining uterine equilibrium and of the very slight support needed by the uterus when in the normal position. Only when retroverted can we need the firmer and stronger ligaments. The uterosacral ligaments are all-sufficient when the uterus is in normal position.

In the operations described this morning the entire stress was laid on the anatomy and the pathology discovered. The physiologic functions were entirely ignored. The doctors speak of putting a plug in the hernial hole, of building up a bottom to prevent things from coming out, and Dr. Montgomery even speaks of the interposition of muscles. I should not consider the interposition of muscles for closing this space. I should restore those muscles to their normal position so that they can perform their normal function, which is to lift the anus in defecation and deflect intra-abdominal or pelvic pressure. They are not plugs or dead tissues; they are vital energizing tissues and we should look to their function and then restore it, and not the anatomy only.

must disagree with Dr. Polk in his assertion that the weak spot is in front. In the great majority of these cases the uterus comes down first, then the rectum and finally the bladder. The support in front is, as a rule, the last to yield. Therefore, in all these operations, if the woman is in the child-bearing period, we must first restore the uterus to its normal position, then look after the bladder and lastly the rectum.

There has been no reliable principle up to a very recent date on which these operations can be based. Drs. Benjamin and Dorsett have struck the keynote in referring to the intra-abdominal pressure. It is the direction and control of the intra-abdominal pressure that determines whether or not the uterus will stay in place. The intra-abdominal pressure when it impinges on the uterus forces it down until the ligaments are taut. The cervix gives way and allows the uterus to tilt up sufficiently to deflect the pressure into the pelvic outlet.

The thing we want to look to is the proper restoration of the uterus to the normal position in child-bearing women by restoring its ligaments so that it can meet and control intra-abdominal pressure when it comes down in the pelvis. I have an operation that is applicable to child-bearing women, and that is modified to meet conditions that come later in life. In child-bearing women I restore the uterus to the normal position, shorten the ligaments to permit it to meet the abdominal pressure efficiently, and then stitch up the bladder so that it will be suspended from above.

In elderly women, at the menopause or later, I remove the uterus, but restore a deflecting plane made up of the broad ligaments to control and direct the intra-abdominal pressure. That is the entire principle and explains why it is that the uterus is retained in place so easily when in its normal position and why, when it is not, we have these disastrous consequences.

Dr. Robert Earl, St. Paul: The crucial point in the consideration of the various operations for prolapse of the uterus is whether or not the uterus is suspended or supported. What maintains the uterus in position? The peritoneum, blood-vessels, ligaments, pelvic-floor muscles, pelvic fascia, fat and skin must be considered. That the peritoneum cannot hold the uterus in position is evidenced by the fact that hernia occurs if there is a constant fight between intra-abdominal pressure and the peritoneum. That the blood-vessels and nerves cannot hold the uterus in position is evidenced by the fact that there is a marked elongation of the blood-vessels and nerves in cases of floating kidney or other loose abdominal organs. The round ligaments never hold the uterus in position because they are curved. You can place a forceps on the cervix and pull the uterus down and out and the round ligaments will not become tense or straight. The uterosacral ligaments do, in a considerable measure, help to maintain the uterus in position by suspension; but, the uterosacral, like the round ligaments, are made up of muscle tissue of the uterine type and one of their functions is to hold the uterus down, aided by abdominal pressure, during the pains of labor. One of the functions of the round ligaments is to hold the body of the uterus forward, and the function of the uterosacral is to hold the cervix back, thereby maintaining the uterus on a horizontal plane in order that the abdominal pressure shall strike the uterus on its broad, flat surface, forcing it against the vaginal walls and forcing all against the most resistent part of the perineum. The broad ligaments being composed of peritoneum, connective tissue and blood-vessels all stretch. The levator ani muscle is practically an abdominal-wall muscle. It contracts synchronously with the other abdominal-wall muscles. Were it no so, we should have bulging of the perineum during inspiration. In spina bifida and injury of the fourth sacral nerve, prolapse of the pelvic organs occurs in the female and a bulging of the perineum in the male. This I believe is conclusive proof that the pelvic organs are supported by the muscular perineum and are not suspended by the ligaments.

There are many operations recommended, but each operator concludes by saying that the operation must be completed by building up the perineum. I believe that that is the secret of success in all of these operations—the building up of a good muscular perineum. When the perineum is relaxed it is because of laceration, atrophy, dilatation or weakness of the muscular tissue. Then the intra-abdominal pressure forces the pelvic organs gradually out; therefore the weakened pelvic floor is the main cause of prolapse. In those cases in which it is not possible to build up a good muscular perineum, either the uterus or stump of the cervix must be anchored securely to the anterior wall of the abdomen or there will be a considerable percentage of failures.

Dr. A. Goldspohn, Chicago: In the Wertheim-Schauta-Watkins operation the uterine cavity becomes wholly inaccessible. This is serious. We know that senile endometritis is frequent enough in women who have not a sufficiently distorted position of the uterus to invite it. I should abhor creating that condition in the pelvis of a woman even if she could not conceive. I think that it would be better to remove the uterus, although that is not the best way of curing the prolapse. We can utilize that old uterus in curing the prolapse and simplify the operation in these decrepit women by not removing it. I am glad to hear emphasis laid on the proper reconstruction of a foundation from below by getting together the lateral halves of the levator ani muscle and the deep pelvic fascia in a firm union in the median line by transversely placed sutures, not one inch from the vulva as Dr. Martin suggests, but two inches. It cannot be done with less than that. It was my privilege fourteen years ago, to introduce the procedure known as "intrapelvic, intravaginal perineorrhaphy without loss of tissue." I am sorry that I have neglected to say much about it since that time.

If you will make an actual restoration of the pelvic floor, the morbid conversion of things that Wertheim proposed is not necessary. It will be sufficient simply to detach the bladder from the front of the uterus and hang the uterus in a perpendicular position, not horizontally, simply turn it forward half as far, a quarter instead of a half of the circle. Then place the bladder, the mischief-maker, where it cannot do harm, that is, on top of the fundus of the uterus, and anchor the uterus firmly to the anterior vaginal wall. Then build up the right kind of foundation from beneath. In some extreme cases of old women, in whom the parts have become extremely relaxed, atrophy is an important factor. It is better in these cases to make a ventral incision and anchor the fundus of the uterus to the abdominal wall by a Gilliam operation well drawn up, plus ventrofixation by a fibrofibrous union. This gives a union that will never let go. Then you must do a real restoration of the pelvic floor.

The operation to be discussed is not prolapse of the uterus in women who are no longer to bear children, that I regard as practically accomplished. The question before the profession is to find an operation that will be curative in young women who are yet to bear children; that class of women we have few of in this country, but many abroad. The efforts of Dr. Martin in that direction are commendable; but I would call attention to the fact that his suggestion of drawing the sacro-uterine ligaments from behind and uniting them in front of the cervix is an operation of a man in Dublin, published about two years ago. The anatomic study of Dr. Somers calling our attention to the importance and great utility of the uterosacral ligaments is exceedingly commendable.

Dr. George Gellhorn, St. Louis: The multiplicity of conditions encountered makes it imperative that we familiarize ourselves with a number of operative procedures. It is obvious that an operation which is indicated in a woman at or near the menopause cannot be applicable during the child-bearing period; nor can a method by which a uterus may be saved be equally suited to cases in which the uterus must be removed, for instance, in fibroids What becomes of our boastful principle of individualization in medicine if we operate on every patient by the one method that we happen to know best, or by chance have originated ourselves? The Wertheim-Schauta-Watkins operation is excellent in certain well-defined cases, but totally unsuited for women in the child-bearing age. For these the Vineberg method will be found to have many attractive features. The Goffe and Polk methods and a dozen others are available and advisable in certain cases, but none of them is complete without a solid perineorrhaphy.

Dr. G. Betton Massey, Philadelphia: I believe that if surgeons will refer their patients after operation, and possibly some of the younger women before operation, to adequate treatment of muscle-exercising character, they will get far better results. They are not dealing with a fibrous skeleton alone, but with muscular tissue. We have come back to the belief in the importance of support from below. Muscular tissue is above, in the abdominal wall, as well as below. We should restore the abdominal tone, and that can be done effectively by powerful galvanic currents turned on and off rhythmically. A more recent current for that purpose is known as the sinusoidal current, having to a great extent the characteristics of the old galvanic current and of the faradic current. Either of these currents is particularly applicable to younger women. I think all will usually fail in older women. I urge it after operation and before operation. It should be done, however, by a man who understands its application, and it should be continued for an adequate length of time, which is not less than three months.

Dr. E. E. Montgomery, Philadelphia: I endeavored to leave the impression that the operation which I suggested was limited in its application to a certain class of cases. I do not wish to be understood as advocating the removal of the uterus in every case of prolapse. That has been mentioned by the men who have discussed this subject. It is important that we consider the various conditions which maintain the uterus in its proper position. This is not the peritoneum alone, nor the muscular structure. It is a combination of all the structures working together that serves to keep the organ in its proper position. It is impossible after an extensive prolapsus to restore these structures to their normal relation. We are obliged to bring them together and place them out of the ordinary relation and situation in order to accomplish restoration and prevent hernia. In this displacement there is, as mentioned by Dr. Polk, a weakened position, generally in front, which permits sliding down of the bladder; the uterus may push down in the center. There is also a weak point between the levator ani muscles and the rectum. We see through this prolapse of the rectum in women who have not given birth to children. It is simply a diastasis of the levator ani muscles which permits the rectum to come down between them. If this has continued for a length of time the rectum becomes adherent to edges of the muscles. The levator ani muscles can be brought together in front to form a wall to prevent protrusion of the rectum. It is important, as mentioned by Dr. Earl and Dr. Goldspohn, that this operation should be carried high on this muscle so that the muscle wall shall be brought together in front of the rectum for some distance. I have seen cases in which after operation hernia recurred; the intestine and peritoneum pushing down caused stretching and atrophy of the structures below, requiring subsequent operation. The uterus can be retained in position by folding together the structures. Dr. Polk was modest in not having mentioned an operation of his own device, that of dissecting down between the bladder and uterus in front, folding together the structures so as to hold up the uterus, then shortening the broad ligaments posteriorly, bringing the uterosacral ligaments over them in such a way as to maintain the uterus at a higher level. I wish also to commend the operation described by Dr. Somers as being an exceedingly valuable addition to the subject of displacements of the uterus.

Dr. George B. Somers, Omaha: My interest in the sacro-uterine ligaments is directly connected with my interest in the problem of curing prolapse. It is quite apparent from the papers and discussions presented to-day that men who have attempted to devise operations solving the problems of prolapse have divided themselves into two camps, and in their operation of choice one camp advocates the removal of the uterus, the other its preservation. The two principal papers to-day illustrated this. One author advocates the Wertheim-Schauta-Watkins operation; the other, an operation that I think we may safely attribute to Dr. Goffe, namely the removal of the uterus and the uniting of the round and the broad ligaments together as a support below. There would be no quarrel at all on this subject if it were not for the operation of choice. If anybody says that the removal of the uterus is the operation of choice, then at once the conservative camp rises in arms. On the other hand, those who advocate removal will say that the preservation of the uterus is not a surgically attractive procedure. When we can agree that one operation is good in one case, and that the other operation is good in another, then the problem is settled. I think that Dr. Montgomery in prefering hysterectomy saved himself from completely going over to the enemy by saying that he did not advocate removal in all cases. When it is necessary to remove the uterus, then the operation described by Dr. Montgomery is the best operation that can be performed. When a cystocele complicates prolapse, the anterior vaginal wall must be supported. There are two ways of doing this: (1) by placing the uterus beneath the bladder or (2) by removing the uterus and bringing the round ligaments underneath. My preference is for the former for conservative reasons.

Returning to the sacro-uterine ligaments, my attention was directed to them by the fact that in the operation of vaginofixation we frequently find that the uterus will assume a flexed position after the operation is completed, because the cervix is left without support. The only remedy for this that I can see is the use of the sacro-uterine ligaments, shortening them so as to lift up the vaginal vault.

Sneeze Powders.—Charles H. LaWall, in a paper on "Chemistry and Practical Jokes" (*Pennsylvania Pharm. Assn. Proc.*, 1913, p. 221), describes the composition of sneeze powders as follows:

> "It is a different matter, however, in the case of the sneeze powders, as they are called, which are sold in tiny vials labeled 'Kachoo Powder,' each containing about 10 grains of a gray powder which I found to be one of the most acrid and irritating substances known to chemistry. Contrary to the usual supposition, red pepper, hellebore, bayberry, sanguinaria, tobacco or other common sternutatories, are not present in this material, which I have recently investigated and found to consist almost entirely of acridin, probably a crude form of the substance.
>
> "Acridin, $C_{13}H_9N$, is a basic substance obtained as a fraction of coal-tar, associated with crude anthracene. Its name is indicative of its properties. It is a powerful sternutatory and skin irritant. The only legitimate use to which it has ever been put is as an insecticide and also in compositions for coating the bottoms of vessels to preserve them. It is said by some authorities that the preservative properties of some coal-tar products are due to the presence of small amounts of acridin."

STUDIES IN AUSCULTATORY BLOOD-PRESSURE PHENOMENA

THE CLINICAL DETERMINATION OF DIASTOLIC PRESSURE *

LOUIS M. WARFIELD, M.D.
MILWAUKEE, WIS.

A mass of data concerning the value of systolic pressure readings has accumulated within the past few years. Hypertension has become a word which is in danger of being worshipped as a fetish. It seems to me that much of the hypertension which we see is a *compensatory* effort on the part of the heart to maintain the circulation in equilibrium. Regarded in this light it becomes physiologic, and successful attempts to reduce it not infrequently produce unpleasant results.

To the other phenomena of the blood-pressure, the diastolic pressure and the difference between the systolic and diastolic pressures—the pulse-pressure—*but little* attention has been paid. Possibly this has been due to the fact that the methods of measuring the diastolic pressure have not been uniform, and thus no comparison was possible between the results of observers, and the results of any one observer were so *variable that* no conclusions could be drawn. It is my purpose to call attention to a reliable and uniform method of determining the point at which diastolic pressure should be taken.

It will, I think, be granted now that the auscultatory method of measuring blood-pressure is the most satisfactory and uniformly accurate of all the methods practicable for bedside work. Further, that the systolic pressure is to be read at the moment when, with a gradually decreasing pressure in the arm cuff, a clear clicking tone can be heard. The diastolic pressure has received but *scant study*. This has no doubt largely been due to the fact that there were various more or less inaccurate methods in use, and no method which gave results comparable to those which could be obtained for systolic pressure.

Fig. 1.—Fast drum. Sudden decrease in size of pulse-wave at 4, marking the change from clear sharp tone to dull tone.

Although Korotkoff[1] in his original communication called attention to the fact that the diastolic pressure should be taken at "the end tone," that is, at the point at which the clear third tone was suddenly replaced by a dull tone, and Fischer,[2] and Lang and Manswetona[3] confirmed this, Ettinger,[4] on the basis of a large series of observations, made his five tone phases and held that the diastolic should be read at the disappearance of all sound. Gittings,[5] and Goodman and Howell[6] in their observations evidently took Ettinger's word and used the disappearance of all sound as the place to measure diastolic pressure. Goodman and Howell[6] went so far as to divide off the phases between first and fifth into a series of four tone phases and, calculating the percentage of every tone phase to the pulse-pressure, they attempted to *show that the* sum of the percentages between first and second and fourth and fifth should be less than the sum of second to third and third to fourth. That their attempts to measure heart strength by this means is inaccurate will be demonstrated later in this paper. They did call attention, however, to the fact that one could note irregularities in the strength of the individual heart beats more accurately with the auscultatory method than by listening directly over the heart. They called these audible irregularities, *tonal arhythmias.*

It will not be granted that after one has taken the systolic pressure he has completed the blood-pressure determination. It seems logical to believe that the pulse-pressure, the actual head of pressure driving the blood into the peripheral vessels, and representing the systolic output of the heart, should be most important in cardiac prognosis. We cannot determine *the pulse*-pressure unless we have measured the diastolic pressure. It is *not so much* the knowledge of the pressure under which an organ receives its blood, as *it* is the knowledge of the amount of blood an organ receives per unit of time, that enables us to judge of functional capacity. *It* would be important to be able to calculate the *velocity of the blood. Within limits*, but within very small limits, there is a relationship between pulse-pressure and velocity. Within these limits, theoretical as well as experimental, the velocity of flow is equal to the pulse-pressure times the pulse-rate. Unfortunately this simple formula is dependent on so many disturbing factors in the circulation that it is not possible to use it in but a *limited number of cases*. In normal persons after exercise this formula apparently holds good; but in the high pulse-pressures of chronic nephritis, *for example, it* is most inaccurate, for we have no means of measuring the mass movement of the blood. In general, I think, it *may* be said *that a diminution of* the pulse-pressure means lessened velocity of blood-flow, but the reverse does not hold good. Without going further into the value of the pulse-pressure determination, which will be dealt with in Dr. Stone's paper, suffice it to say that there seems to be a very definite value, and therefore the determination of diastolic pressure assumes considerable *importance.*

---

* From the Medical Clinic of the *Milwaukee County Hospital.*

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Korotkoff: Zur Methodik der Blutdruckmessung, Mitt. d. mil. med. Akad. zu St. Petersburg, 1905, xi, 365.

2. Fischer, J.: Die auskultatorischen Blutdruckmessung im Vergleich mit der oszillatorischen von *Heinrich* von Recklinghausen und ihr durch die Phasenbestimmung bedingte Wert, Ztschr. f. diatet. u. physik. Therap., 1909, xii, 389.

3. Lang and Manswetona: Zur Methodik der Blutdruckmessung nach von Recklinghausen und Korotkoff, Deutsch. Arch. f. *klin.* Med., 1908, xciv, 441.

4. Ettinger: Die auskultatorische Blutdruckmessung nach Korotkoff, Wien. klin. Wchnschr., 1907, xx, 992.

5. Gittings, J. C.: Auscultatory Blood-Pressure Determinations, Arch. Int. Med., August, 1910, p. 196.

6. Goodman and Howell: Further Clinical Studies in the Auscultatory Method of Determining Blood-Pressure, Am. Jour. Med Sc., 1911, cxlii, 334.

In a paper[7] read before the Wisconsin State Medical Society in June, 1912, evidence was brought forward to show that the diastolic pressure should not be taken at the disappearance of all sound when using the auscultatory method. As has been said, this was the point used by many investigators. The conclusion arrived at from a study of records made with the Erlanger sphygmomanometer was that "the diastolic pressure is not usually at the point of disappearance of all sound—the fifth phase." This was a negative conclusion, but seemed to render invalid the work of those who took the fifth phase as the diastolic pressure.

Erlanger[8] showed some years ago that with his instrument the point at which diastolic pressure should be read was at the instant when the maximum oscillation of the lever suddenly became smaller. It was while checking up the graphic with the auscultatory method with Erlanger's instrument that it was noticed that the disappearance of all sound did not correspond with this sudden diminution of the oscillation of the lever connected with the brachial artery. The question seemed important enough to settle for future work, so that an attempt was made to show experimentally on dogs that the fifth phase was below diastolic pressure, and an effort was made to find out just what phase in the auscultatory phenomenon was the real measure of diastolic pressure. These experiments[9] were carried out in the physiologic laboratory of the University of Wisconsin. The conclusions reached from these experiments were that the diastolic pressure was not at the point corresponding to the disappearance of all sound, but at the change from clear to dull tone. This corresponded with the minimal pressure recorded by a Dawson maximum and minimum pressure recorder inserted in the dog's carotid pressure manometer system.

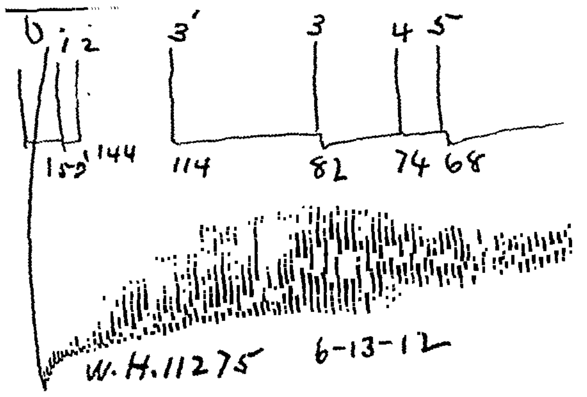


Fig. 2.—Slow drum. Sudden decrease in amplitude at 4.

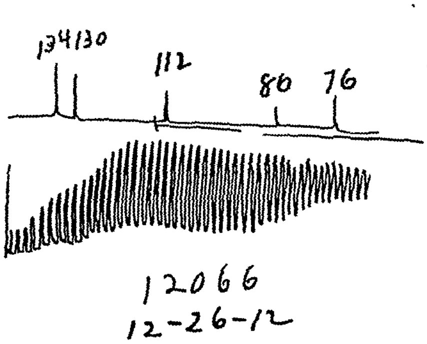


Fig. 3.—Sudden decrease near 86, fourth tone.

With this data clinical observations were resumed. It was found that with the exercise of greater care and precision rather sharp records were possible. It was seen that during the period of the third tone phase the oscillations of the lever on the drum reached a maximum and remained at approximately the same height for some millimeters while the pressure was gradually falling. At a point at which the third tone, clear and distinct, became dull, there was an appreciable decrease in the height of the pulse-wave (Figs. 1 and 2). From this point to the disappearance of all sound there was a gradual diminution of the size of the pulse-waves.

For normal pressures the difference between the fourth (dull) tone and the fifth (disappearance of all tone) phase, amounted to from 4 to 10 mm. Occasionally the difference was so little, the change from sharp third tone through fourth dull tone to disappearance of all sound was so abrupt, that one could take the disappearance of all sound as the diastolic pressure with an error of not more than from 2 to 4 mm. For high pressures the difference was never less than 8 mm., and was found as much as 16 mm.

Comparative readings were taken by watching the oscillations of the mercury column while recording the oscillations of the lever on the drum. It was found impossible to obtain readings comparable in accuracy to the auscultatory method, owing to the fact that the weight of the mercury column did not record changes as quickly as the lever attached to the air tambour. With the dial instrument, however, it was seen that the sudden lessened amplitude of the needle oscillations after the maximum was reached *corresponded accurately to* the point at which the third tone became dull. Hence with some practice one could use this point on the dial instrument as the place to read diastolic pressure. *It is better, simpler and, for most observers, more accurate to use the stethoscope and hear the change of sound.*

In normal persons it is a matter of no difficulty to determine accurately the diastolic pressure. In many cases of decompensation with intermittent and irregular hearts it is impossible to determine either the systolic or diastolic pressure. In the cases of permanently irregular hearts it is exceedingly doubtful whether one can obtain even approximately accurate readings.

In cases of uncomplicated aortic insufficiency the diastolic pressure may be as low as 20 mm. Between 30 and 40 is a common enough finding. Moreover, the change from the third clear tone, which may be so loud as to be uncomfortable to the ear drums, to the fourth dull tone is particularly sharply defined.

CONCLUSION

We may affirm that there is both clinical and experimental evidence to prove that the point at which diastolic pressure should be read, when using the dial instrument, is at the point where the fling of the lever during the gradual lowering of pressure suddenly becomes less, or, better, with the auscultatory method, where the clear sharp third tone suddenly becomes dulled.

141 Wisconsin Street.

---

[7] Warfield, L. M.: The Auscultatory Blood-Pressure: A Preliminary Report on the Clinical Determination of Diastolic Pressure, Interstate Med. Jour., 1912, xix, 856.

[8] Erlanger, J.: A New Instrument for Determining the Minimum and Maximum Blood-Pressures in Man, Johns Hopkins Hosp. Rep., 1904, xii, 53.

[9] Warfield, L. M.: Studies in Auscultatory Blood-Pressure Phenomena: 1. The Experimental Determination of Diastolic Pressure, Arch. Int. Med., September, 1912, p. 258.

THE CLINICAL SIGNIFICANCE OF HIGH AND LOW PULSE-PRESSURES WITH SPECIAL REFERENCE TO CARDIAC LOAD AND OVERLOAD*

WILLARD J. STONE, M.D.
TOLEDO, OHIO

METHOD AND PURPOSE OF STUDY

The attempt has been made, in an analysis of comparative pulse-pressure observations in 170 persons, to determine what, if any, clinical significance was to be attached to certain high and low auscultatory readings. For convenience of classification, the patients have been grouped as in the accompanying tabulation:

Conditions	Number of Patients Studied
1. Normal circulatory conditions	61
2. Acute infections	26
3. Arterial hypotension	9
4. Arterial hypertension	51
5. Myocardial and valvular lesions:	
(a) With compensation	9
(b) With decompensation	14

The readings were taken as follows: With the patient t rest, compression was made with a 12 cm. arm-band nd the systolic pressure taken by palpation. The ompression was then released and, after an interval ufficient for reestablishment of the circulation in the rm, the stethoscope was lightly applied over the rachial artery below the arm-band. Compression was eapplied and the systolic pressure taken by auscultation. The reading was taken at the moment the first clear sound was heard. The compression was then gradually released and the various tone phases noted. At the point at which the third phase of loud tone became suddenly and markedly dull—the fourth phase—the diastolic pressure was taken. The pulse-pressure was taken as the difference between systolic and diastolic pressure.

The difference between the maximum pressure exerted by the kinetic energy of the blood-column and the minimum pressure or potential energy exerted by the vessel walls is the pulse-pressure. It represents the intermittent burden of pressure imposed on the arteries by the heart's energy in systole in order to force the blood toward the periphery and maintain the circulation. The pulse-pressure may therefore be defined as the amount of pressure exerted by the heart during systole in excess of the diastolic pressure. It measures the excess of dynamic, over potential, energy. For clinical purposes it represents the load of the heart. Under normal conditions it is approximately 50 per cent. of the diastolic pressure. The systolic and pulse-pressures represent myocardial values, while the diastolic pressure represents arterial resistance. Incidentally it may be mentioned that the pulse-pressure is that part of the heart's energy which produces the distention of arteries which is recognized as the pulse.

HEART LOAD AND OVERLOAD

The many factors make the interpretation of any given series of cases an exceedingly difficult problem. One is confronted with many seeming paradoxes. For example, in sixty-one normal persons with an average systolic pressure of 123 and diastolic of 80, the pulse-pressure average was 40. The amount of energy expended, therefore, to *maintain* the circulation in excess of that required to open the aortic valves and overcome the resisting pressure of 80, was 40. The normal load may therefore be considered to be 40/80, or 50 per cent. of the diastolic pressure. In twenty-one acute infection recovery cases, the average systolic pressure was 119, the diastolic 76, the pulse-pressure 42. The amount of energy expended, or load, necessary to maintain the circulation in excess of the diastolic pressure was therefore 42/76, or 55 per cent. On the other hand, *in five fatal acute infections*, the average systolic pressure was 102, the diastolic 68, and the pulse-pressure 34. The amount of energy expended, or load, was 34/68, or 50 per cent.

It is apparent, then, that the problem involves the consideration of other factors, such as the mass movement of the blood and the venous pressure. Three years ago, before this Section, Hoover[4] pointed out that "the systolic and diastolic pressure may be within normal limits and still the mass movement of blood be much impaired," as was evidenced by marked signs of myocardial inefficiency, such as a *positive venous pulse*, cyanosis, dyspnea and edema. This has been observed in some of the fourteen decompensated myocardial cases of this series. The mass movement of blood-volume was impaired without marked alteration in the systolic and diastolic pressures. On the other hand, it appears that certain significant facts have been disclosed in the study of these cases, for while the average diastolic pressure, within normal limits was 84, the systolic was 148 and the pulse-pressure 64. The amount of energy expended in systole, or load, to maintain the impaired circulation, in excess of the diastolic pressure, was therefore 64/84, or 76 per cent., an overload of 26 per cent. The same condition was found to exist in hypertension cases. In fifty-one patients, the average systolic pressure was 161, the diastolic 95 and the pulse-pressure 66. The amount of energy expended, or load, was 69 per cent., an overload of 19 per cent. This was especially noticeable in the forty-seven patients over 40 years of age. Their average systolic pressure was 171, the diastolic 100 and the pulse-pressure 71. The amount of energy expended in systole, or the heart load, was 71/100, or 71 per cent., an overload factor of 21 per cent.

The question immediately arises as to how long the heart integrity may be preserved under such conditions. It is apparent that many persons with high pressures, and many hearts with impaired valves, are not seriously embarrassed for many years, owing to the compensatory hypertrophy and increased capacity for work which fortunately follow. It should be emphasized that high systolic, with slightly increased diastolic, pressures and a corresponding increase in the pulse-pressure is a compensatory attempt on the part of the heart to adjust itself to new conditions.

Preceding circulatory failure, however, but while the myocardial efficiency is impaired, there may be an essential change in the readings, with a tendency toward equal or higher pulse-pressure than diastolic pressure.

In six of the fourteen decompensated myocardial cases, the pulse-pressure approached or exceeded the diastolic as follows:

---

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

*Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

[4] Hoover, C. F.: A Criticism of the Blood-Pressure Apparatus, The Journal A. M. A., Sept. 3, 1910, p. 815.

Case 1.—T. W., mitral stenosis with regurgitation, cardiac dilatation, perpetual arhythmia, dyspnea and general anasarca. The average diastolic pressure for six weeks before death was 63, pulse-pressure 79. The amount of energy expended, or load, was 79/63, or 125 per cent., an overload of 75 per cent.

Case 2.—J. B., mitral regurgitation, with dilatation of left ventricle, dilatation arch aorta (?). The diastolic pressure was 90 and the pulse-pressure 100. Sudden death occurred three days after this reading. The amount of energy expended was 100/90, or 111 per cent., an overload of 61 per cent.

Case 3.—Mrs. J. L., paroxysmal tachycardia, rate 172, heart-block (?), systolic murmur over apex, thrill over precordia, dyspnea, but no edema. The diastolic pressure was 95, the pulse-pressure 85. The amount of energy expended, or load, was 85/95, or 90 per cent., an overload of 40 per cent.

Case 4.—J. B, mitral regurgitation, with decompensation, diastolic averages 57, pulse-pressure 90. The amount of energy expended was 90/57, or 158 per cent., an overload of 108 per cent.

Case 5.—H. C., mitral regurgitation, hypertrophy of left ventricle, frequent extra systoles, dyspnea on slight exertion, influenza. The diastolic pressure averaged 46, pulse-pressure 49. The amount of energy expended was 49/46, or 106 per cent., an overload of 56 per cent.

Case 6.—Miss A. C., mitral stenosis with regurgitation, diastolic averages 85, pulse-pressure 70. The amount of energy expended was 70/85, or 82 per cent., an overload of 32 per cent.

The load in seven of the remaining patients with myocardial decomposition averaged 61.6 per cent., or an overload of 11.6 per cent.

MYOCARDIAL FATIGUE AND CIRCULATORY FAILURE

We may consider that under certain conditions the myocardial overload may exist for years with little or no evidence of decompensation. Judging from this small series of cases it would appear that when the overload factor exceeds 50 per cent., the patient may be in danger of myocardial exhaustion at any time of slight overstrain. In fact, a majority of the forty-seven hypertension patients past forty years of age, in this series, did not show clinical symptoms of hypertension until the overload factor exceeded 25 per cent. Some were quite free from symptoms when the overload was 50 per cent. but most of these were able to regulate their lives, free from the liability of overstrain. As a rule, the greater the overload, the greater the danger. The following cases are given as examples:

Case 7.—Mrs. W. J., aged 53, plethora, systolic 180, diastolic 130, pulse-pressure 50, heart-load 50/130, or 38 per cent. If the deductions given before hold true, we would consider this patient in greater danger of cerebral accident than myocardial fatgue because of the high diastolic pressure.

Case 8.—E. L., aged 63, with a history of earlier angina, systolic pressure 170, diastolic 85, pulse-pressure 85, has a heart load of 100 per cent., or an overload factor of 50 per cent. According to these deductions, he would be considered in danger of an impending myocardial decompensation at any time of overstrain.

In many instances it has been interesting to attempt to correlate the symptoms of failure with pulse-pressure observations.

Case 9.—Miss F. H., aged 22, exophthalmic goiter and a pulse-rate of 132, showed a systolic pressure of 145, diastolic 75 and pulse-pressure of 70. The heart load was 93 per cent., an overload factor of 43 per cent. She died in shock five hours after removal of one lobe of the thyroid, under gas-oxygen anesthesia, by a competent surgeon.

In brief, it appears that with an overload factor of 50 per cent., in which the pulse-pressure equals the diastolic pressure, the danger of myocardial exhaustion is impending. To this factor is intimately connected, in instances associated with rapid heart-rate, the fact which Henderson and Barringer[5] have shown, that at rapid rates the shortened diastolic period cuts short the relaxation of the ventricle so that the ventricle does not have time to fill completely and, in consequence, the volume of blood thrown out in systole is diminished. The mass movement of blood would thus be impaired.

While this study does not warrant one in offering any expression as to the sequence of events which actually occurs in myocardial fatigue, it has been interesting to observe that when the pulse-pressure falls rapidly, or a low pulse-pressure of from 15 to 20 is present, actual circulatory embarrassment has occurred. The rapidity of the fall undoubtedly has much to do with circulatory failure, although in what way, remains to be determined.

Case 10.—W. E., aged 60, came under observation with a systolic pressure of 195, diastolic 60, pulse-pressure 135. The heart load was 225 per cent., an overload factor of 175 per cent. The patient showed a left ventricle dilatation, with systolic murmur at apex, bigeminal pulse and general anasarca. Under digitalis and free purgation his general condition improved, with disappearance of edema, until three weeks later the systolic pressure was 152, diastolic 100, and pulse-pressure 52, entirely within normal limits. He died suddenly about three weeks later. The mass movement of blood must have improved with the decrease in heart overload, for the heart-rate was not rapid and still circulatory failure followed.

It is beyond the province of this paper to enter into the discussion of these changes even though the discussion of one phase of cardiac fatigue immediately concerns the discussion of all others. It appears probable, though, that when the load suddenly decreases, cardiac dilatation has occurred.

CARDIAC DEATHS WITH LOW PULSE-PRESSURE

In certain deaths with low pulse-pressure, the following conditions were present:

Case 11.—G. M., aged 37, streptococcus septicemia, with endocarditis, all valves apparently involved, pulse-rate 120 to 140, subnormal temperature for two weeks before death. Systolic pressure varied from 85 to 100, diastolic from 70 to 75, pulse-pressure from 10 to 25. The average pulse-pressure for three days before death was 20.

Case 12.—H. B., aged 54, abscess and gangrene of lung following pneumonia. Systolic pressure was 105, diastolic 85, pulse-pressure 20, eight hours before death.

Case 13.—C. D., aged 24, postdiphtheritic pharyngeal paralysis, vagus paralysis (?). Pulse at wrist 36, over precordia 120, systolic pressure 90, diastolic 70, pulse-pressure 20, twelve hours before death.

Case 14.—Mrs. R. A., aged 33, probable gastric ulcer starvation and nephritis. The systolic pressure was 115, the diastolic 100, pulse-pressure 15. An unfavorable surgical prognosis was given and the patient died two weeks later from inanition.

The pulse-pressure often reaches as low a point as twenty, without serious clinical evidences of myocardial exhaustion although it appears from this study that these patients are undesirable surgical risks and may be on the verge of actual circulatory failure.

THE PULSE-PRESSURE IN HEMORRHAGE

Henderson and Barringer have shown that in hemorrhage or circulatory shock the venous pressure is low. They believe that the so-called "critical factor" refers to the failure of venous supply to the right heart and that failure of the circulation in shock is due primarily to the abolition of venous, not arterial, tonus. It would seem that a lowered venous pressure would decrease heart output by lessening the pulse-pressure on the arterial side. In one patient, who died two days after recurring typhoid hemorrhages, the systolic pressure was 67, the diastolic 47, the pulse-pressure 20.

---

[5] Henderson, Y., and Barringer, T. B., Jr.: Am. Jour. Physiol., 1913, xxxi, 288, 352, 362, 399.

Wiggers[9] has shown that a progressive decrease in pulse-pressure indicates, as a rule, a continuance of hemorrhage.

It would seem that the three important circulatory factors producing death in such instances were:

1. The peripheral resistance is suddenly diminished, owing to the hemorrhage, with increased heart-rate such as occurs experimentally when a large vessel is severed in an animal.

2. With rapid heart-rates, the volume of blood thrown out by the succeeding systole is diminished, because of insufficient time for ventricle relaxation.

3. The respirations are then increased in an endeavor to maintain venous pressure sufficient to distend the right ventricle as rapidly as the duration of diastole allows. But the venous pressure is low in hemorrhage, with the result that the right ventricle fills incompletely, which would diminish first the volume output of the right ventricle and then the left ventricle. With a decreased volume output the load or pulse-pressure would be diminished. Cardiac death may occur at this point, or the rapid respirations may lead to increased carbon dioxid elimination with the result that the carbon dioxid content of the blood falls to the point below which the respiratory center is stimulated, and apnea results.

COMPARISON BETWEEN PALPATORY AND AUSCULTATORY READINGS

	Normal Circulatory Conditions		Acute Infections		Arterial Hypotension	Arterial Hypertension		Compensated Myocardial Lesions	Decompensated Myocardial Lesions
	35 Cases Under 40 Yrs.	26 Cases Over 40 Years	21 Cases Recovery	5 Cases Death	9 Cases Aver. Age, 37	4 Cases Under 40 Yrs.	47 Cases Over 40 Years	9 Cases Aver. Age, 36 Yrs.	14 Cases Aver. Age, 46 Yrs.
Systolic pressure, palpation, average	117	126	116	not palp.	101	142	167	120	145
Systolic pressure, auscultation, average	120	127	119	102	105	151	171	123	148
Diastolic pressure, auscultation, average	81	82	76	68	84	90	100	82	84
Pulse-pressure, average	39	41	42	34	22	61	71	41	64
	aver. 40								
Heart load, per cent., average	48	50	55	50	26	67.7	71	50	76

In one patient with severe pulmonary hemorrhage, occurring in glass blowers' emphysema and tuberculosis, the systolic pressure was decreased and the diastolic increased during the hemorrhage, with pulse-pressure lowered to 20, which was increased to 40 within a few hours after the last hemorrhage. In another patient with a flank stab-wound lacerating the kidney cortex, with severe retroperitoneal hemorrhage and peritonitis from puncture of the colon, the systolic pressure was 98, the diastolic 55 and the pulse-pressure 43 during the hemorrhage. After drainage of the abdomen and enteroclysis, the diastolic fell to 38, while the pulse-pressure was increased to 54. This was in accord with the observation of Hürthle that the pulse-pressure increases with a decreased peripheral resistance due in this instance probably to toxic vasodilator effects of the peritonitis. Shortly before death from peritonitis, the diastolic fell still further to 35, and the pulse-pressure was increased to 75.

THE PULSE-PRESSURE IN ANEMIA

In three instances the systolic pressure varied from 120 to 135, the diastolic from 60 to 85 and the pulse-pressure from 45 to 65. The patient with the lowest red count, 1,630,000, had the lowest diastolic pressure of 60, and in consequence the highest pulse-pressure, 65.

THE PULSE-PRESSURE IN CARDIAC NEUROSES

It has been noticed in several instances of so-called irritable hearts, due to tobacco, that there were marked variations in all readings. For example:

Case 15.—O. G., aged 20, showed a systolic pressure of 135, diastolic 80, pulse-pressure 55, heart-rate 96. Ten minutes later the systolic pressure was 125, diastolic 90, pulse-pressure 35 and heart-rate 90.

It appears that marked variation within short intervals in the pulse-pressure observations should make one think of the neurotic cardiac element.

THE PULSE-PRESSURE CHANGES DURING EXERCISE

Different writers on this subject have suggested that the diastolic pressure is not affected, as a rule, by exercise in tests of the functional efficiency of the heart, while the systolic pressure is increased. The following experiments were made in persons with supposedly normal circulations.

Case 16.—R. S., at rest, had a systolic pressure of 125, diastolic 95, pulse-pressure 30. After twenty bending movements the systolic pressure had increased 10 points to 135, the diastolic had increased 5 points to 100 and the pulse-pressure was 35. After forty stationary running-steps, the systolic was increased to 145, the diastolic was 105 and the pulse-pressure was 40. After fifty additional stationary running-steps the systolic pressure was 160, the diastolic 110 and the pulse-pressure 50. During these exercises the systolic pressure had increased 35 points, the diastolic 15 points and the pulse-pressure 20 points.

Case 17.—W. S., at rest, had a systolic pressure of 118, diastolic 80 and pulse-pressure 38. After twenty bending movements, the systolic pressure was 122, the diastolic 78 and the pulse-pressure 44. After forty stationary running-steps, the systolic pressure was 122, the diastolic had fallen 4 points to 74 and the pulse-pressure was 48. After fifty additional running-steps the systolic pressure was 120, the diastolic 72 and the pulse-pressure was 48. During these exercises the systolic pressure remained practically stationary, the diastolic fell 8 points and the pulse-pressure was increased 10 points.

---

[9] Wiggers, C J.: The Prognostic Significance of Pulse-Pressure Changes During Hemorrhage, Arch. Int. Med., September, 1910, p. 281.

In both instances the pulse-pressure, or load, was increased by exercise.

THE INTERPRETATION OF TONE PHASES

The various tone phases heard by auscultation over the brachial artery below the arm-band during compression may be described as follows:

1. First phase, a phase of clear tones which is soon replaced by the second and third phases.
2. Second phase, a phase of muffled tones with a series of murmurs.
3. Third phase, a phase of clear tones which suddenly becomes the fourth phase.
4. Fourth phase, a phase of dull tones.
5. Fifth phase, disappearance of all sound.

Korotkow,[10] who first introduced in 1905 the auscultatory method for the determination of the arterial pressure, believed that the point at which all tones disappeared, the fifth phase, marked the diastolic pressure. It has been shown by Lang and Manswetowa,[11] in 1908, and by Warfield[12] in 1912, that the diastolic pressure coincided with the point at which the third phase of clear tone became suddenly and markedly dull—the fourth phase. This point has been used to determine diastolic pressure in this clinical study.

COMPARISONS BETWEEN PALPATORY AND AUSCULTATORY READINGS

The palpatory method, as will be noticed from the accompanying table, gave, as a rule, slightly lower readings than the auscultatory method.

THE INFLUENCE OF HEART-RATE ON PULSE-PRESSURE AND SYSTOLIC OUTPUT

It has been supposed by many writers that the volume of systolic output could be expressed by the formula, heart-rate multiplied by pulse-pressure.

Clinically, however, the heart-rate in circulatory shock —in the sense of Henderson—*increases out of proportion to the fall of pulse-pressure,* owing to the central vasomotor influence. Two examples, among others, may be mentioned.

CASE 18.—P. B., who died in circulatory shock from typhoid hemorrhages, showed a pulse-rate of 120 and pulse-pressure of 20, equal to an output of 2,400 unit volumes. The observation the following day, three hours before death, showed pulse-rate 148, pulse-pressure 20, equal to an output of 2,960 unit volumes. His circulatory condition should have shown improvement according to the formula but such was not the case.

CASE 19.—G. M., streptococcus septicemia, pulse-rate 120, pulse-pressure 10, equal to an output of 1,200 unit volumes. The observation two days later, seven hours before death, following an intravenous injection of strophanthin, showed pulse-rate 140 and pulse-pressure 25, equal to an output of 3,500 unit volumes. According to the formula his output was increased, but death occurred seven hours later.

It is therefore believed that in circulatory shock the pulse-pressure multiplied by the heart-rate does not give a reliable index of systolic output.

CONCLUSIONS

1. The determination of systolic and diastolic pressures by the auscultatory method is to be preferred to the palpatory method for systolic and column indicator oscillation for diastolic, because of greater accuracy.

2. The readings are slightly higher by the auscultatory than by the palpatory method.

3. The pulse-pressure measures the energy of the heart in systole in excess of the diastolic pressure. For clinical purposes it represents the load of the heart. Under normal conditions it is approximately 50 per cent. of the diastolic pressure. The myocardial load may therefore be expressed by the fraction

$$\frac{\text{pulse-pressure}}{\text{diastolic pressure}} \text{ or } \frac{\text{P.-P.}}{\text{D.P.}}$$

4. Since the diastolic pressure measures the peripheral resistance it is a better index of hypertension than the systolic pressure. A sustained diastolic pressure of from 100 to 110 signifies hypertension. The diastolic is less influenced by physiologic factors than the systolic pressure.

10. The pulse-pressure multiplied by the pulse-rate does not give a reliable index of systolic output in circulatory shock since the pulse-rate clinically increases out of proportion to the fall of pulse-pressure. This shortens the time during which the left ventricle is filled during diastole and lessens the systolic output, although by the formula, pulse-rate multiplied by pulse-pressure, the unit volume output may appear to be increased.

It is a pleasure to acknowledge the suggestions and criticism of Dr. E. W. Jackson of Rochester, New York, in the preparation of this paper.

216 Colton Building.

---

[10] Korotkow, N.: Vrach. Gaz., 1906, p. 128.

[11] Lang, G., and Manswetowa, S.: Deutsch. Arch. f. klin. Med., 1908, xciv, 441.

[12] Warfield, L. M.: Studies in Auscultatory Blood-Pressure Phenomena, Arch. Int. Med., September, 1912, p. 258.

CLINICAL ASPECTS OF HYPERTENSION *

JOSEPH L. MILLER, M.D.
CHICAGO

While the question of hypertension has been thoroughly discussed during recent years, it is still one of the problems in medicine. With the introduction and general use of the sphygmomanometer, we have become acquainted with the frequency of increased blood-pressure, and have been able to follow its course; but the question of its etiology or pathologic physiology is largely undetermined. The present report is concerned merely with the present views of its etiology, a consideration of a series of cases observed during the past few years, and a brief discussion of the prognosis and treatment.

Arterial and renal changes have always been considered the most important factors in high blood-pressure. With our increasing knowledge of this subject, the importance of the renal factor has become more and more apparent, and coincidentally with this, lessened weight is attached to general arterial changes, especially if we exclude the arterial changes in the kidney. It is generally accepted that sclerosis of the peripheral arteries does not increase blood-pressure; and while it is acknowledged that involvement of the celiac axis or its branches, the great regulator of the blood-pressure, may give rise to hypertension, clinically this is probably a quite infrequent cause. The recent greater importance attached to renal lesion can be largely accounted for by improved methods of diagnosis of kidney lesions; or perhaps more accurately, it has been determined that apparently normal urinary findings do not exclude serious kidney involvement. The careful necropsy studies, and especially the careful histologic examination of the kidneys of patients with approximately normal urines, and high blood-pressure, have shown how fallacious it may be to exclude nephritis in the absence of albumin and casts. Especially in extreme hypertension, 200 mm. or more, some form of nephritis is almost constantly present, and is probably responsible for the increased blood-pressure.

---

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Kidney lesions are less frequently reported in patients with pressure below 180 mm., but it is scarcely probable that the lesser degrees of hypertension are due to different causes than those of extreme degree, but rather that the kidney involvement is less extensive and less readily detected. It is quite possible that as our knowledge of the morphology of the kidney advances and methods are developed for the detection of finer histologic changes, kidneys now pronounced normal may fall into the class of the definitely pathologic. We now believe that a kidney cannot be pronounced normal merely from its macroscopic appearance, as many of these histologically show extensive interstitial or glomerular changes. Our functional kidney tests show, as it were, only the grosser kidney lesions. It must furthermore be borne in mind, as bearing on this particular subject, that a kidney may be so affected as to modify the general blood-pressure and still show proper elimination of waste. The recent discovery of the importance of glomerulonephritis lessens greatly the value of any but the most recent report on the prevalence of renal involvement in cases of hypertension. Especially must we view with suspicion those cases in which the diagnosis of nephritis has been determined by merely a macroscopic examination of the kidney.

Fischer[1] has recently furnished an interesting report of 550 cases of hypertension in which the clinical and pathologic evidence of nephritis has been carefully considered. His series does not differ materially from others previously reported except possibly in the care with which the cases have been studied. Sixty-two per cent. of these patients gave definite clinical evidence of nephritis, 15 per cent. were suspicious, and only 23 per cent. had a normal urine. Excluding those cases with pressure below 160, in only 3.6 per cent. was the urine normal. Necropsies were held in forty-two cases and in each instance definite microscopic evidence of nephritis was detected; although in fourteen of these the urine did not show evidence of renal trouble. This furnishes very good evidence that nephritis cannot be excluded when the urine is apparently normal.

In Krehl's clinic 87.4 per cent. of the cases with pressure of 200 mm., or higher, showed definite clinical evidence of nephritis, and forty-two of the forty-three cases coming to necropsy showed definite renal involvement; the majority showed interstitial or arterial changes. Statistics of this character might be multipled, varying somewhat in the percentage, but all showing the predominance of nephritis in patients with hypertension, and also the greater frequency of the clinical evidence of nephritis in patients with extreme hypertension.

There remains, however, a few cases of hypertension in which with the most careful examination by our present methods the kidneys appear normal. In a few of these the increased systolic pressure can be explained by an aortic regurgitation, in others by marked arteriosclerosis of the splanchnic arteries; but there still remain a very few cases, which at present we refer to as idiopathic. Most of these, however, present only moderate degrees of hypertension.

Assuming that renal changes are usually associated with high blood-pressure, we must still determine in what manner the hypertension is produced. The view has been abandoned that primary heart hypertrophy is responsible for the change in blood-pressure. The heart hypertrophy is probably always secondary. There are still many supporters of the old Traube and Cohnheim view that the mechanical interference with the blood-flow in the kidney was responsible for the condition. Failure to produce increased blood-pressure by ligation of the renal arteries, or by experimental production of multiple renal emboli, does not disprove this theory.

The attempt has been made to explain hypertension through retention of waste ordinarily eliminated through the kidney. None of the substances, however, which are eliminated by the kidney have a pressor action when injected into animals. On the other hand, when the eliminating power of the kidney is impaired by successive removal of small portions of it, finally a point is reached at which the animal develops a polyuria and increased blood-pressure (Tuffner, Bradford, Passler, Heimicke, Janeway,[2] Carrel). In order to produce these results about two-thirds of the total kidney substance must be removed. It is impossible, however, to say whether these results can be accounted for by lessened elimination or mechanical interference with the renal blood-supply. While in uremia there is usually a nitrogen retention, it has not been shown that such retention is responsible for the increased blood-pressure.

Especially in acute nephritis there is considerable destruction of kidney substance, and the view has been advanced that perhaps the products of such autolysis might have a pressor effect. Tigerstedt and Bergmann, having reported that a pressor substance could be obtained from the rabbit's kidney, furnished some support for this view. Others, however, have failed to confirm the findings of a pressor substance in the kidney tissue, so that this theory lacks confirmation.

As the adrenals secrete a substance which possesses a decided pressor action, efforts have been made to associate hypertension with increased secretion from this source. Vacquez in 1904 reported hyperplasia of the adrenals in patients with high blood-pressure, but others have failed to confirm these findings. This does not exclude the possibility of hyperfunction of the adrenals, and the various tests developed for the detection of minute quantities of adrenal secretion in the circulating blood have been used in order to determine the presence of hypersecretion in patients with high blood-pressure. The recent investigations of this subject have failed to demonstrate in patients with hypertension an increase of epinephrin in the circulating blood. While there is no proof that the adrenals play a rôle in permanent hypertension, it is quite possible that the fluctuations in pressure due to worry, excitement, etc., may be due to modications in their secretion, as Cannon and others have shown that the adrenals in a cat become more active under excitement. Time will show which, if any, of the foregoing theories explain permanent high blood-pressure. At present, however, the nature of the process is undetermined.

In going over my office records, I found one hundred cases of hypertension with fairly complete histories of symptoms and renal findings. These were all ambulatory cases and so do not represent the terminal stages of this condition. With few exceptions, the patients have been seen several times, and in some instances have been followed for years. The urine examined was in almost every case a specimen passed at the office, making the test a rather more severe one than would have been the case if the early morning urine had been secured. As the urine was perfectly fresh, and had not been shaken by transportation, there was little probability of casts having been destroyed. In addition, in about one-third of the cases there were one or more analyses of a twenty-four-hour specimen.

---

[1] Fischer, J.: Ueber die Beziehungen zwischen Blutdruck Steigerung und Nierenkrankung, Deutsch. Arch. f. klin. Med., 1913, cix, 469.

[2] Janeway, T. C.: Nephritic Hypertension: Clinical and Experimental Studies, Am. Jour. Med. Sc., 1913, cxlv, 625.

The acetic acid and potassium ferrocyanid test was used for the detection of albumin. A drop from a centrifuged specimen was placed on a slide, and without cover-glass examined under low power for casts, and these reported present only when they were found with ease, one or more in each field. In this group of one hundred patients, sixty-four were males, thirty-six females. Forty-four were over 60 years of age, thirty-six between 50 and 60, seventeen between 40 and 50, two between 30 and 40, and one between 20 and 30. Thirty-three had a blood-pressure of 200 mm. or more, forty-five a pressure between 170 and 200, and twenty-two a pressure between 150 and 170. Albumin and casts were present in twenty-two (66.6 per cent.) of the cases with pressure of 200 or more, three showed casts without albumin, two albumin without casts, and in only six (18.2 per cent.) was the urine apparently normal. Forty-five patients had a blood-pressure between 170 and 200, twenty-one (46.6 per cent.) of these had albumin and casts, three casts only, one albumin only and twenty, or 44.4 per cent., showed a normal urine. Twenty-two patients with a pressure between 150 and 170 showed seven (31.8 per cent.) with albumin and casts, two with albumin only, three casts without albumin, and ten (44.4 per cent.) showed a normal urine.

Thirty-two of the one hundred cases have records of twenty-four-hour urine; 48 per cent. of these had 2,000 c.c. or more and 45 per cent. had 1,500 c.c. or less.

The frequency of renal involvement as determined by the urine, in this series, corresponds very closely with reports from other sources, and shows the great frequency of clinical renal changes in those patients with extreme hypertension. It is very probable that were the urinary examinations made with greater frequency, many of these patients with reported normal urines would show the presence of albumin and casts. Several cases in this list had repeated negative urinary findings, and then a specimen would be obtained which contained great numbers of short, narrow, finely granular casts. One of these patients with a blood-pressure of 200 has had during the past fou. years twenty urinary examinations, and has never shown numerous casts.

Briefly referring to the symptoms presented in these cases, seventeen of the patients were apparently entirely free from symptoms, referable to the high blood-pressure; fourteen of these were men, three women. The three female patients without symptoms had blood-pressures ranging from 165 to 185. Three of the men without symptoms had blood-pressures of 200 or more, one registering 220. Nocturnal polyuria was noted in sixty-five cases; all but two of these were males, and it is not improbable that prostatic irritability, rather than hypertension, was responsible in many instances for this disturbance. Angina pectoris was noted in twenty cases, headaches in ten, dizziness in eight, transitory aphasia or numbness in an extremity in eight, and marked eye symptoms were present in seven. Dyspnea was the most constant symptom, especially dyspnea on exertion.

The records show the cause of death in nineteen cases; this does not by any means include all of those who have died, as many of the patients have been lost track of. Broken compensation was responsible for death in twelve, angina in three, cerebral hemorrhage in three, and uremia in one.

The prognosis in high blood-pressure is of especial interest, as the laity has unfortunately become acquainted with the possible serious consequences associated with this condition. Cerebral hemorrhage, cardiac incompensation (including angina), and uremia are the most frequent causes of fatal termination. It may be, and usually is, exceedingly difficult in any given case to make a prognosis, on account of our inability to determine the strength of the arterial wall and the working power of the heart muscle. The functioning power of the kidney, and the dangers of a uremia, can be determined by the phenolsuphonephthalein test, an output within the first two hours of less than 25 per cent. of the phthalein furnishing evidence of grave renal involvement.

In obese patients, especially in women, a moderate increase in blood-pressure (from 160 to 170 mm.) may cause very decided dyspnea on exertion, or attacks of acute pulmonary edema. Many men, on the other hand, may be entirely free from symptoms with a blood-pressure of 200 mm. or more. The inherent strength of the heart muscle is an indeterminable factor and its ability to continue to perform an increased amount of work can be prognosticated in only a very general manner. The obese individual or person of sedentary habits is more liable to dyspnea from hypertension than those more athletically inclined. The patient who cannot, or will not, avoid physical or mental overtaxation is more liable to serious consequences than one who exercises care. The patient, however, with a pressure of 200 mm., or more, even with the greatest care, is liable at any moment to cerebral hemorrhage, or gradually developing cardiac incompensation; although a pressure of this degree is not necessarily inconsistent with several years of apparently good health. Transitory cerebral disturbances, as lapses of memory, aphasia, dizziness, or numbness in an extremity are an ominous symptom. Nocturnal attacks of acute pulmonary edema indicate that the endurance of the heart is being taxed to the limit, and the same holds true in patients who complain of dyspnea on moderate exertion. The appearance of moderate edema in the feet is of more grave significance in these cases than it would be in a patient with valvular trouble or a myocarditis, on account of the difficulty in restoring the cardiac compensation when its disturbance is due to high blood-pressure. The more marked the evidence of renal disturbance, the more grave the prognosis, on account of the actively progressive tendency of the hypertension, and the danger of uremia. Retinal changes, while of serious import, are not necessarily of such grave prognostic significance. Of extreme significance is the care the person is enabled to exercise, as freedom from physical or mental overexertion, protection from chilling, correction of habits, etc.

The patient, on the other hand, with a pressure of 170 mm. or less is not as a rule in any immediate danger, and with care in regard to diet, elimination, avoidance of overexertion and correction of habits may not only get along comfortably for many years, but may show a rather definite lowering of pressure. Patients with moderate degrees of hypertension are, I believe, much more liable to show a reduction in pressure as the result of treatment than those with very high pressure. It is in this class of patients that we are especially liable to see marked fluctuation in pressure, as a rule due to some inexplainable factor.

The drug treatment of hypertension is of much less importance than attention to elimination, dietetics and general hygiene. Even with our imperfect knowledge of the etiology of this condition much can be done to delay its progress and to prolong life. An effort should be made in each instance to determine certain possible etiologic factors and attempt their correction. On account of the great frequency of renal involvement, increased elimination through the skin and bowel is important.

While we are not at all sure that protein waste has anything to do with the increased pressure, nevertheless it is advisable with our present knowledge to restrict the protein intake, the degree to which this is carried depending somewhat on the apparent extent of renal involvement. We probably all would fare better if we did not use alcohol, tobacco or coffee; it is their excessive use that is especially objectionable, in both the normal person and the one with increased blood-pressure. In order to safeguard the heart all forms of severe physical exertion should be avoided. Excitement and worry, as they no doubt increase the blood-pressure, are to be regulated as far as possible. Moderate systematic physical exertion, on the other hand, may be beneficial to the heart. Golf in moderation, and on a fairly level course, or systematic walking is safe and beneficial for the patient who can do them without the development of dyspnea. Shortness of breath is the best index of physical overtaxation.

In the drug treatment, when evidence of cardiac incompensation develops, digitalis should be used in exactly the same manner as in any other form of cardiac incompensation. Digitalis, when administered by mouth, does not raise blood-pressure, and by relieving cyanosis may actually lower it. There is no good evidence to show that the iodids are of any special value except in those cases in which syphilis plays a rôle. They do not modify the viscosity of the blood, correct the arterial changes or lower blood-pressure. The various vasodilators, as nitroglycerin and sodium nitrite, have a very limited field of usefulness; their effect on blood-pressure is exceedingly transitory, and with the growing belief that the hypertension is a compensatory measure we are less and less inclined to rely on this group of drugs. At least, we all agree that their effects are merely palliative, while the hygienic measures referred to are directed at the underlying causes, as we now understand them. These measures are largely directed toward enabling the patient to live comfortably in spite of his high blood-pressure. If, on the other hand, we expect to reduce the blood-pressure to normal, we are in the vast majority of cases doomed to disappointment.[3]

122 South Michigan Boulevard.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLER, WARFIELD AND STONE

Dr. Louis M. Warfield, Milwaukee: In the last two years I have been impressed more and more with the fact that the diastolic pressure is probably the most important feature in blood-pressure estimation. We see many cases of high systolic pressure which have lasted for years, and all of our conclusions in regard to the blood-pressure have been made from the systolic pressure. My impression, from the few cases that I have studied, is that it is not the high constant systolic pressure which is most important, but the gradually ascending or the high diastolic pressure. The heart compensates for the high diastolic pressure in the high systolic pressure, and the high systolic pressure is really, it seems to me, purely an effort on the part of the heart to maintain the circulation in equilibrium. If the resistance gradually increases there will come a time when the heart is working at its maximum capacity, and a slight strain will break this compensation. A large number of patients with chronic nephritis die from decompensation. The deaths in high pressure are similar in a way to those following intracranial hypertension. The same type of coma is present and at necropsy edema of the brain is found. Not enough attention has been called to this similarity. Much clinical research, checked by necropsy, must be done before we arrive at definite conclusions.

Dr. Stone's conception of the heart load and overload is a most ingenious and interesting one. I have been checking over some of the results of my records in the light of this overload factor, and have been somewhat surprised to find that this overload factor in so many of the cases has proved to be absolutely correct. That it is not correct in all cases one would, of course, naturally expect, but it seems to me that it gives us at present, at any rate, something on which we can work, and which will lead in the future to more accurate knowledge of what constitutes the overload on the part of the myocardium, because, after all is said and done, the myocardium controls the circulation, and any method we may have of measuring the load of the myocardium will give us tremendous advantage in diagnosis and prognosis of heart disease.

It is difficult to measure the systolic pressure and the diastolic pressure in cases of irregular and intermittent hearts. There will be a very strong beat, and several weak beats, and probably a little stronger beat and then a very strong beat, and it is practically impossible in cases of decompensation to measure the systolic and diastolic pressure. This does not seem to me, however, to be of great importance at that particular time, because in patients who are suffering from cardiac decompensation the diagnosis depends really more on the patient as we see him than on the blood-pressure. It is after decompensation has been established, however, that it becomes so essential to be able to tell the patient whether or not his heart is going to carry on his circulation for any length of time.

Other things being equal, a high diastolic pressure is of much greater moment in the prognosis than a high systolic pressure alone, and, if we are going to take one side of the picture only, I believe that it is more important to take the diastolic pressure, which measures the peripheral resistance, or the resistance the heart has to overcome, the work lost, so to speak, before it can possibly carry on any circulation at all.

Dr. Henry L. Elsner, Syracuse, N. Y.: The first class of patients to be considered are those with hypertension. Increased blood-pressure is in itself of little value, except as it teaches the clinician to keep a close eye on the patient, and this he must do tactfully.

When a patient presents himself with what might be called moderate hypertension, without any associated lesions, it is well for us to reassure him and send him on his way, with advice which will lead to right living, including moderate eating at all times.

---

[3] In addition to the references already given, the following will be found of interest:

Ophüls, W.: Subacute and Chronic Nephritis as Found in One Thousand Unselected Autopsies, 1912, ix, 156.

Pearce, R.: Influence of Kidney Extracts and Serum of Animals With Renal Lesions on Blood-Pressure, Jour. Exper. Med., 1909, xi, 430.

Löhlein, W.: Ueber Nephritis nach dem heutigen *Stande der* pathologisch-anatomischen *Forschung*, Ergebn. d. Inner. Med. u Kinderheilk., 1910, v, 411.

Ingier and Schmorl: Ueber den Adrenalingehalt der Nebennieren Deutsch. Arch. f. klin. Med., 1911, civ, 262.

O'Connor: Ueber den Adrenalingehalt des Blutes, Arch. f. Exper. Path. u. Pharmakol., 1912, lxvii, 195.

Stewart, G.: A Comparison of the Action of Plasma and Serum on Certain Objects used in Biologic Tests for Epinephrin, Jour. Exper. Med., 1913, xvii, 152.

A second class of patients consists of elderly people or those who are prematurely old who have hypertension with considerable hypertrophy of the heart, and yet, under these conditions, are often comparatively comfortable. They require reassurance and watching, never demand overmedication, and do not need continuous depressing autosuggestion.

The third class of cases includes patients with hypertension with positive renal changes but without marked symptoms. I have called these types of nephritis "non-albuminuric nephritis." The important fact to bear in mind is that it is not necessary in these cases to have albuminuria or casts and that these patients demand the closest care to prevent complications.

A fourth class of cases includes patients with very high blood-pressure, with positive renal symptoms, with marked arterial change, palpable thickened arteries and with a great many other symptoms. These patients demand our closest attention.

Of the iodids, or iodin preparations, and the nitrites, we are, I think, agreed that potassium iodid does the most, if any, good, but it ought to be given during a long period. The nitrites are really of no value, so far as the permanent effect on blood-pressure is concerned, but are of positive value for the relief of the sensory symptoms of arteriosclerosis, of hypertension, and especially in cases of stenocardia or angina pectoris and vascular spasm.

We should teach cardiac pathology based on the newer physiology. The graphic method leads to safer prognoses than we have ever made before. I have used the McKenzie polygraph with great satisfaction and have learned that in most cases of auricular disturbances the prognosis is fairly good, in spite of fluttering and delirium cordis. Ventricular disturbances are more serious.

Benjamin Rush made the statement in lectures delivered 125 years ago that "during his entire experience he had seen but one case of angina pectoris," and he says in parenthesis "I know of one other case which one of my colleagues in Philadelphia saw." When we consider the enormous number of cases of arteriosclerosis and stenocardia to-day we appreciate that the stress of modern living, competition, the use of machinery to expedite matters which invite haste, and wear and tear, with associated worry are the potent factors in producing degenerative processes.

Dr. W. S. Thayer, Baltimore: The study of blood-pressure is more important, perhaps, from the standpoint of prognosis than from that of diagnosis. The estimation of the maximum pressure alone is not the whole story. I was much impressed by what Dr. Stone and Dr. Warfield said with regard to the importance of the study of the minimum pressure, which is now easy and simple as a result of recent studies. In the tests in the beginning of the study of blood-pressure, the estimation of minimum pressure was not a simple matter. I wonder what my feelings would have been about one or two examples that I have used for the last three or four years to the students, one of them a man who came to me eleven or twelve years ago, now aged about 54 years, with a pressure of between 235 and 250. It was elicited with a very narrow band. He was much worried; he had some symptoms of vertigo; he had no evidence of nephritis. I advised him to be moderate in his general ways. I did not give him much besides small doses of iodids. He became tired of coming to me, and stopped treatment. He feels better than he used to, but his pressure is the same. I wonder whether or not my prognosis made eleven years ago was correct.

I agree with what Dr. Stone said about the therapy of cases of hypertension. I should like to emphasize the occasional danger of the free use of nitrites in chronic nephritis. I have seen one or two instances in which I felt sure that uremia was brought on by their use. A few years ago a man was sent to the hospital with a pressure of 220 and evidences of a slow chronic nephritis. He was given large doses of the nitrites; his pressure fell suddenly to 150 or 160, and he became anuric and comatose. After a week of vigorous treatment he came out of his coma, his pressure rose to about 200 and he left the hospital feeling well. Nitrites in this marked hypertension chronic nephritis should always be used with care and confined to the relief of headaches and other subjective symptoms.

Dr. H. S. Munro, Omaha, Neb.: If we study the problem of the composite individual we shall find that we have a syndrome in which we must consider the gastro-intestinal derangements leading to auto-intoxication—deficient elimination, with its resulting cardiovascular pathology, and the nervous symptoms which would logically accompany this syndrome. Then if we go down into the study of the psychology of the individual patient, we shall find that the diseased condition presenting itself is the end-product of all that has constituted the life of the patient, such as habits, quantity and quality of food, and vocation and other environmental factors contributing to the cause of the pathology found to exist. If we will approach the relief of these special pathologic entities in an indirect way, seeking to remove the cause of which they are the logical consequence, we shall do much more for the welfare of the patient than if we devote too much attention directly to the treatment of the special pathology. These conditions are often the result of abnormal social conditions, of misadaptation socially and economically. Quite frequently this class of patients has sought relief, and the nervous element attracted the most attention. I find always that high blood-pressure and cardiovascular lesions are associated with deficient elimination, autotoxemia and the abnormal habits, psychic and physical, corresponding to these end-results.

It is simply a question of inducing the patient to adopt healthful habits of life, after first administering a course of disintoxication treatment, in which fasting, exercise and psychotherapeutic measures have been my sole reliance. Rest in bed and overfeeding are never indicated.

Dr. J. M. Anders, Philadelphia: Dr. Miller well said that the subject of the clinical relation of hypertension has received a large share of professional attention recently and yet, because of the many unsolved problems connected with it, requires further study. He referred to an interesting and important class of cases in which there is no definite etiology and in which the cases are unassociated with any symptoms referable to the heart, the arteries or the kidneys. Because of the fact that a patient with simple hypertension presents no symptoms, the condition has been termed physiologic by certain English writers, notably Allbut. My own belief is, however, that the biologic chemistry of the future, together with further clinical study, will show that this class of cases will undergo a constant diminution. For example, it is quite evident that many cases of simple hypertension formerly considered physiologic are associated with latent kidney conditions; and again, others are associated or dependent on neurasthenic states. While certain authors regard these cases as having no assignable etiology and no symptomatology, let us not forget that if we study them with sufficient care we shall sometimes at least find a cause, or a combination of causes, that will adequately explain the hypertension. In my experience most of these cases occur in persons who are addicted to the immoderate use of alcohol or tobacco and are subjected to more or less nerve-strain; and I have felt repeatedly that this alcoholism and nicotinism, as well as nerve-strain, might explain the increased peripheral condition which always leads to hypertension, and thus furnish a basis for rational treatment. Again, constant hypertension in many cases, if they be watched long enough, will be found to lead to arteriosclerosis. This theory of Scheffer, Klotz and others, in explanation of arteriosclerosis is now accepted by many modern writers. Therefore, these cases of so-called simple hypertension constitute an important group, clinically considered. We have not been sufficiently impressed with the importance of recognizing the nervous element in the causation of many of these cases of hypertension, and particularly of fluctuating hypertension, and that in the treatment the most important item is absolute rest in bed for a period of several weeks at least, rather liberal feeding, massage and the use of the nitrites to combat certain sensory symptoms.

Dr. Thomas McCrae, Philadelphia: Regarding the opinion that in many cases of patients with high blood-pressure nephritis is latent, that is, without signs in the urine or anything to suggest clinical nephritis, it is important to consider what we mean by nephritis. If we say that a patient with high blood-pressure, whose urine is absolutely normal, has latent nephritis, we are losing all definite meaning of the term nephritis used clinically. A patient may have nephritis and go several days without urinary signs, but if he has a pressure of 225, is in bed for a month, and we examine all the urine, do the functional test two or three times and find that he is functionally normal, and then say that because that man has high blood-pressure he has latent nephritis, it seems to me that our diagnosis is open to question. You may quote pathologic figures which show a large percentage of nephritis. But what is nephritis on the necropsy table? You may ask the pathologist to draw the lines exactly, but the better pathologist he is, the more he hesitates to draw these lines. We must keep in mind that in persons over 50 the vast majority of kidneys show changes which one man may interpret as nephritis, and another may regard as the changes which occur with the advance of years. In correlating figures we must know what each particular pathologist terms nephritis. Where do the cases belong which occur in women about the time of the menopause, who have high blood-pressure for a year or two years, which later falls to normal, the urine being perfectly normal? Is there any suspicion of nephritis in some of these cases? I think not. It is a question whether or not we are justified in considering that high blood-pressure always means nephritis, in the absence of other definite findings.

Dr. W. W. Tompkins, Charleston, W. Va.: We are likely to emphasize the importance of symptoms by calling them too strongly to the attention of the patient.

Dr. Miller stated, if I understood him correctly, that digitalis given by the mouth did not increase the blood-pressure. I believe it has a contrary effect; that digitalis given by the mouth will increase the pressure as well as when given hypodermatically.

Dr. Walter L. Bierring, Des Moines, Iowa: It seems to me that there is much importance to be attached to the reference made to the nervous aspects of hypertension, particularly those attacks with lapse of memory, fainting attacks and very slight apoplectic seizures. I do not know just what Dr. Miller's explanation is for these. It seems that these attacks might be explained best by assuming the existence of vascular crises, intermittent closures of the vessels, as first described by Paul. It has appeared in the few instances in which subsequent examinations were possible that these particular nervous phenomena or cerebral arterial disturbances were most marked in cases in which there was an underlying nephritic disturbance or nephritic changes in rather definite arteriosclerosis or other arterial changes.

Dr. A. C. Griffith, Kansas City, Mo.: I am inclined to agree with those who have spoken of hypertension as due to some nervous phenomenon. In one case of hypertension the systolic pressure was 260 and the diastolic pressure 180. The pressure was reduced by rest, but no iodids of any description seemed to have any effect on the pressure. The patient, a woman about 60 years of age, was extremely nervous. The systolic pressure ran along from 260 down to 200 for two years. There was no change in the arteries, and no change in the kidney that could be detected by frequent examination of the urine. The functional activity of the kidneys was not changed at all by this hypertension; no dyspnea was particularly noticeable on exertion, and we could attribute the hypertension to nothing else than a neurasthenic condition.

Dr. Joseph L. Miller, Chicago: The subject which I discussed was permanent hypertension. I believe that nervous conditions are responsible for transitory disturbances of the blood-pressure, and that these disturbances of the blood-pressure may be of very high degree; but I believe that nervous influences are not commonly responsible for permanent high blood-pressure. I believe fully that pathologists disagree as to what constitutes nephritis, and Dr. McCrae made a very suggestive statement when he said that the patient should be kept under observation and the urine examined over a long period of time. I believe that, if we examine the urine of these patients with high blood-pressure daily, perhaps over a long period of time, and they show no casts, as a rule, we may be surprised to detect occasionally showers of casts. He also referred to his functional kidney tests in these cases. I am of the belief that, if we follow one of these patients with high blood-pressure and without casts or albumin through a long period of time, with daily examinations of the urine, and make repeated functional kidney tests, we shall find after all that the majority of them do show evidence of kidney incompetence, but I believe that as time goes by we are going to ascribe more and more of our high blood-pressure conditions to renal changes.

I have tried, repeatedly, taking the blood-pressure of patients several times a day for several days before digitalis was administered, then taking it several times a day for days when the patients were under the influence of digitalis, and I failed to find any material difference in the blood-pressure during these two periods of time. Furthermore, Cushney, working in conjunction with McKenzie, also maintains that digitalis administered by the mouth, at least in ordinary doses, does not affect the blood-pressure.

CANCER OF THE UTERUS

SOME POINTS TO BE EMPHASIZED IN THE EARLY DIAGNOSIS *

RUFUS B. HALL, M.D.
CINCINNATI

It is desirable to consider the diagnosis of cancer involving the cervix, and that involving the body of the uterus, separately. Therefore, I shall take up first the early symptoms of the disease involving the cervix, and later those involving the body of the uterus.

Cancer of the uterus has received more attention from gynecologists than any other disease peculiar to women. One must be convinced by study of the literature that the large part of this energy in the past has been directed toward the perfection of operative technic rather than to the more importnat problem of early diagnosis. The technic of the operation by the vaginal or abdominal route, or by a combination of both, has been perfected until little more is to be desired along that line. But what has the profession accomplished in the last decade in early diagnosis of cancer, that has benefited these patients? Scarcely anything at all.

While the men engaged in this special work have made advances in the early diagnosis of the disease, it does not benefit the great majority of these unfortunate patients, because we have not taught the family physician, who sees these patients first, to make the diagnosis in time for early operation. That many patients come to operation too late to promise a reasonable hope of cure, every operator of experience must admit. If an early diagnosis is to be made, it must be through the education of the laity by the family physician. From past experience I am convinced that the laity will not be educated until we can in some way bring home to the family physician his great responsibility. The propaganda for education of the family physician as well as the laity, inaugurated by the American Gynecological Association at its annual meeting in 1912, and more completely elaborated at the Washington meeting in 1913, should be commended and encouraged with enthusiasm by the entire profession.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

I have little new to offer but would emphasize some of the early symptoms of the disease that are so often neglected.

The importance of careful supervision over women regarding their sexual organs during the cancer period of life, which could be arbitrarily stated from 37 to 47 years, cannot be overestimated. I do not wish to be understood as saying that we may not encounter the disease in patients much younger or much older, but such cases are not nearly so often seen. The most trivial complaint, let it be discomfort in the pelvis or back, associated with a little watery discharge or leukorrheal discharge, or pruritus, during this period, should be investigated at once. The patient should not be permitted to go four or six months, or even a year, without an examination to determine the cause of these symptoms, as most of these patients are permitted to do now. before their physician examines them. During the past five years, for every case of cancer of the cervix coming under my observation early enough for an operation that justified the removal of the uterus, sixteen others came too late. For the five years just preceding that period, the ratio was one to twenty-one. In cancer of the body of the uterus the ratio was 1:4. The vast majority had consulted their physician several times, seeking advice for symptoms that were directly associated with the pelvic organs, such as pain in the back, irritable bladder, vaginal discharge or a little bleeding between the periods, and were treated expectantly without a vaginal examination being made or even suggested.

It is true that many of these patients did not apply to their physician for a vaginal examination but consulted him for advice. It is the family physician's duty however, to investigate every case in which the patient gives symptoms referable to the sexual organs during the cancer period of life, just as carefully as though he believed she had cancer, until he proves that she has or has not. When every physician realizes how important it is to the patient for him to do so, we have the key to the situation. We shall then have a great saving of suffering and prolongation of life for this unfortunate class of women. I am convinced that if these women were carefully examined by the family physician early, he would have little or no difficulty in convincing himself that the patient had cancer or that there was something out of the usual in her condition, and he would seek a consultation. Early diagnosis is of great importance to the family physician, in addition to the great good rendered his patient, because these patients and their friends invariably criticize his management of the case if he has delayed making an examination or has neglected to make one when they find that the disease has advanced beyond the operative stage. This criticism would be avoided if he investigated the case and made the necessary examination as it should be made at once, when the patient first applied for relief.

In the early diagnosis of cancer of the cervix, one should not overlook the fact that trauma due to childbirth plays an important rôle in the etiology of the disease. More than 98 per cent. of cases of cancer of the cervix occur in women who have borne children. Heredity does not appear to have as much bearing on the disease as it apparently does in carcinoma of the breast. Less than 10 per cent. of all cases of cancer of the cervix give a history of any member in the family having had cancer in any part of the body. A clinical record of every case examined by me is kept and filed. It is from these records, extending over a period of twenty-five years, that these deductions are made.

The early symptoms of cancer of the cervix, which I have observed in the order of their importance, are: (1) a watery discharge; (2) an irritable bladder; (3) a little irregular bleeding, and (4) a disagreeable odor. In reference to the watery discharge, I do not mean the ordinary leukorrheal discharge that women frequently complain of, but a watery discharge not unlike beef brine in its appearance. It may not be very profuse, but enough to stain the linen brownish. It irritates the vulva. It is more or less constant for a varying period of from five or six weeks to three or four months, before the patient considers herself ill. This is a most important symptom. If the history of the patient is carefully taken at the time, most of these patients soon after the watery discharge is noticed will give a history of irritable bladder; that is, they say that they must empty the bladder more frequently than before. They are relieved after the bladder is empty and they have little or no tenesmus. Where the patient could formerly go from four to six hours without discomfort, she now has to empty the bladder every two or three hours, and when she is unable to do this she is in distress. This is a most valuable early symptom and should be carefully considered. There is also associated with the watery discharge a vulvar pruritus in a large number of cases. Pruritus not associated with glycosuria during the cancer period of life should be carefully and immediately investigated to determine the exact cause.

The irregular bleeding amounting merely to a spot on the clothing between the periods is not an early sign of the disease, but it is one that should be immediately investigated. If the history of the case were taken at the time that the first bleeding is observed, there would be no difficulty in establishing the diagnosis of cancer, and that it has existed for a period of three or four months, or even longer. In almost every case it would be found that the symptoms enumerated had been present and observed by the patient for many weeks, in some instances for months, before the first bleeding occurred. Bleeding is not an early symptom. Many writers insist that one of the early symptoms of cancer of the cervix is irregular bleeding. It may be an early prominent symptom in some cases, but almost all these patients have other well-marked symptoms before the first bleeding is observed. The difficulty is to get the profession to place the proper importance on the apparently trivial symptoms. The disagreeable odor so much spoken of by most writers is a late symptom of the disease. This odor is from decomposition, a breaking down of the tissues. Necrosis must occur before there is the disagreeable odor for which so many doctors wait before they venture the opinion that the case is one of cancer.

Hemorrhage and pain come late in the disease. When the patient complains of severe pain and has had several hemorrhages, it will be found that she has passed the time when an operation for extirpation of the uterus would be of much permanent benefit.

One must differentiate cancer of the cervix early in its history from (1) erosion, (2) laceration, when the cervix is inflamed, (3) cystic degeneration, (4) tuberculous ulcer and (5) chancre. The diagnosis early is much easier than is generally supposed. When cancer is suspected from the history of the case, a careful vaginal examination is made by touch. If malignant disease is present, a small nodule is to be found. It is usually in the angle of a previous laceration and it can be distinctly felt as a little lump under the examining finger, entirely different to the touch from any other portion of the cervix.

In erosion, the entire cervix in every place feels exactly the same under the examining finger. Every portion of the cervix feels alike in a lacerated, inflamed cervix. There is no hard point the size of a bean or larger, and the entire ulcerated cervix feels alike. With a speculum the cancer appears different on inspection from the other tissues around. It bleeds more easily when touched with a probe. In erosion the whole cervix bleeds easily on touch and there is no hard point. In laceration every portion is alike. In cystic degeneration, under the examining finger one feels hard, round, small tumors, seldom one, usually several. On viewing the parts through a speculum, one finds that the cervix has the same appearance over the entire portion. There is no redness over these little hard bodies. When one is punctured by the knife, with the discharge of mucus the diagnosis is complete. It is hardly necessary to say that the examination would not be complete in any doubtful case without a microscopic examination of a portion of the diseased tissue.

Tuberculous ulcer is so rare, as compared with cancer, that the presumption would be in favor of cancer. The one case which I observed occurred in a patient who was far advanced in general tuberculosis. In that case there was no difficulty in deciding that the case was not one of cancer of the cervix.

From chancre, which is also comparatively rare, there should not be much difficulty in making a correct diagnosis. The sensation by touch is different from every other condition. The deep-seated ulceration, the hardened edge, with sharp, well-defined border, and the signs of syphilis in other parts of the body, should make the differential diagnosis in most cases exceedingly easy.

The early diagnosis of malignant disease of the body of the uterus is also very much neglected by the profession at large. Most cases are permitted to drift under palliative measures for a year, before cancer is seriously considered by the physician. The disease is so insidious in its onset, that if the first symptoms are observed within a year or two after the cessation of menstruation, the patient naturally attributes her symptoms to the menopause, and usually delays consulting her physician until the disease is far advanced. This form of cancer may and does occur in the maiden as well as in the woman who has borne children, which is not true in cancer of the cervix.

The disease is comparatively rare before the menopause. The majority of the patients whom I have seen were past 50 years of age. The earliest symptoms observed in these patients, by careful tabulation and review of their clinical histories, have been a watery discharge with a little bleeding (not a hemorrhage), at irregular periods, coming on several years after the establishment of the menopause. Associated with this discharge, every one of these patients complained of pruritus. Nearly every patient applied to her physician for relief from that annoying symptom, not suspecting that the discharge had any relation whatever to the pruritus. The discharge was not great enough to alarm the patient but enough to leave spots on the linen. As the disease progressed and after it had existed for from six months to a year, the bleeding, which heretofore had been just a spot on rare occasions, became more frequent and a little more in quantity, associated with a discomfort almost amounting to a pain in the back, or pain in the region of the uterus, or both. The pain comes late in the disease when the uterus is enlarged by the new growth, and the uterine muscle makes an effort to rid itself of the foreign body.

The diagnosis of malignant disease of the body of the uterus early in its history is not at all difficult, and there is no excuse whatever for this unseemly delay. With the clinical history, the physician should proceed to the examination. He will find that the uterus is enlarged, freely movable, and more sensitive than normal, with no perceptible disease of the cervix. If the disease is far advanced, the uterus may be greatly enlarged. A probe passed gently into it shows that the organ measures 3 inches or more in depth. The slightest manipulation of the probe will cause a free discharge of bright red blood. If a positive diagnosis cannot be made at this examination, it is the physician's duty to give the patient an anesthetic and explore the uterus thoroughly. He should curet it thoroughly and have a careful microscopic examination made of the scrapings. If this procedure is done, a diagnosis in a majority of cases would be made at the first curetting. If, however, a positive diagnosis of cancer cannot be made and the patient continues to bleed, in the course of six or eight weeks she should again be anesthetized and the uterus thoroughly explored and curetted, and a microscopic examination of the specimen made. Only on a few occasions have I been compelled to do a second curretting to confirm or disprove the diagnosis of cancer, when the clinical history and the symptoms justified that suspicion.

THEORETICAL AND PRACTICAL FOUNDATIONS OF A RADICAL OPERATION FOR CARCINOMA OF THE CERVIX UTERI *

EMIL RIES, M.D.
CHICAGO

The cause of carcinoma is at present unknown. Our knowledge of carcinoma in the human being is built up on clinical and pathologic observations. These have led to certain conclusions as to the growth of carcinoma, which may be summed up approximately as follows:

Carcinoma in its beginning is a purely *local disease* of a circumscribed group of epithelial cells. The tumor invades the host in two ways: first, by contiguity, and second, by the establishment of colonies or metastases, which are endowed with the same activities as the primary tumor.

The *contiguous growth invades lymph-channels* early and regularly, the blood circulation rather incidentally, irregularly and, we may say, less frequently. The primary tumor is subject to changes in two ways: first, degeneration, and second, infection. The metastases established especially along the lymphatic system are subject to the same changes, necrosis taking place in them and infection reaching them through the same or similar channels through which originally the carcinoma has reached them.

In the beginning, when there is no carcinoma in the patient's body except the original focus, a piece of tissue which comprises all of this tumor is a simple block of tissue by the removal of which, *theoretically at least*, the entire carcinoma can be eliminated. As soon as colonies have become established, a block of tissue which is to include the entire carcinoma must include besides the original tumor all the metastases or colonies. In order to excise such a block, we ought to have full and complete knowledge of all the metastases present in a given case. With our present methods this knowledge is absolutely unattainable. Therefore the outlines of the block of tissue which we have removed in carcinoma operations, and which we have hoped or intended to represent all the carcinomatous tissue, has been dictated by guesses as to the extent of carcinoma in the individual case rather than by exact knowledge.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

This block of tissue, which we may call the "carcinomatous block," is limited in one stage of our surgery of carcinoma of the cervix by the cervix itself, in a later stage by the outlines of the uterus and for the most advanced surgeon by considerably wider boundaries. We have enlarged the carcinomatous block in all carcinoma operations. The enlargement of the carcinomatous block in carcinoma of the cervix has been justified no less by the investigation of the specimens removed by the operation than by the improved remote results. It therefore has now a pathologic and statistical basis which was entirely lacking in 1895 when I first proposed this operation. But even to-day the delimitation of the large block is an arbitrary matter, and it is one of the fundamental weaknesses of all of our carcinoma operations that it must remain arbitrary so long as we have no means of preoperative diagnosis of the number and extent of the metastases, and therefore of the proper size of the carcinomatous block.

We consider the metastases of carcinoma to be derivatives of the original carcinoma, cellular constituents of which we believe to have been carried through the lymphatic channels to the lymphatic lymph-nodes. We also have concluded that it is necessary to include in the carcinomatous block all the lymph-vessels between the original focus and the metastatic focus in the lymph-node. We have been forced to this conclusion by the uncertainty as to what might happen if we cut across a lymph-vessel between the primary and the secondary focus. Two risks inherent to such operating have to be considered: first, the risk of leaving behind carcinoma metastases in a lymph-vessel which would lead to false recurrence, and, secondly, the risk of cutting through a lymph-vessel at a point where carcinoma is in its lumen and thereby spreading carcinoma in the wound, producing implantation recurrence. On the other hand we must not forget that these theoretical considerations are not any too well founded on actual observations. It is no exaggeration to say that hundreds of thousands of sections have been examined since 1895 by others as well as by myself. But in spite of this immense amount of material it has hardly ever been possible actually to demonstrate carcinoma in transit from the original to the secondary focus. Carcinoma in lymph channels in the immediate neighborhood of the primary focus, or in the capsule or near the capsule of lymph-nodes, has been demonstrated often by myself and others. But observations of carcinoma in transit at a distance from both the primary focus and the regionary lymph-nodes, say halfway between them in the broad ligament, are so rare as to be practically unknown. This is a point which deserves more consideration than has been accorded it so far. I am well aware, however, of the fact that it is practically impossible to recognize one or two isolated cancer cells in a lymph-vessel, and that therein may lie the reason why there are no extensive observations of carcinoma in transit.

In spite of this lack of actual observations of carcinoma in transit, it is absolutely logical to include in the carcinoma block not only the primary focus and the preferential seats of the metastases, but all of the intervening tissue as well; in other words, a prerequisite of a thorough carcinoma operation is that of continuous instead of non-continuous dissection.

The improvement in the results of operations for carcinoma in any part of the body can easily be shown to depend largely on this method of continuous, rather than discontinuous, dissection. Take, for instance, carcinoma of the breast and compare with it carcinoma of the vulva. The dissection of the carcinoma block in carcinoma of the breast is the best example of continuous dissection and the results are very fair. The operation for carcinoma of the vulva to this day is a shocking example of discontinuous dissection and its results are correspondingly miserable. In carcinoma of the breast every surgeon emphasizes the necessity of removing all of the tissue in one block. In carcinoma of the vulva the vulvar tumor is removed in one block, and, if the operator tries at all to be radical, the lymph-nodes are removed in one or two more blocks, so that altogether we get two or three blocks with intervening tissue left standing. It is not rational and the results are poor. As other examples of discontinuous dissection and poor results I may add the operations for carcinoma of the face, of the tongue, of the penis, of carcinoma of the extremities, especially Roentgen-ray carcinomas of the hands, carcinomas of the stomach, carcinoma of the gall-bladder. In all these, the operations performed usually are discontinuous dissections and in all the results are highly unsatisfactory. Improvement in results depends, therefore, not only on enlargement of the carcinomatous block, but fully as much on the method of *continuous dissection.*

It is evident that there are good reasons why the enlargement of the carcinomatous block and the continuous dissection are not available in all carcinomas. For instance, in carcinoma of the breast the carcinoma block, as bounded to-day and large as it is, is too small for many cases. Suffice it to mention merely the invasion of the chest wall, pleura, mediastinal lymph-nodes. On the other hand, the reasons for the discontinuous dissection of the primary tumor and the lymph-nodes in carcinoma of the face are also perfectly evident. Let us suppose a case of a carcinoma of the cheek. To make a continuous dissection, it would be necessary to remove the whole thickness of the cheek and the jaw and all the soft parts around the tumor in order to obtain one continuous block of tissue, including the primary tumor and the lymph-nodes of the parotid, under the jaw, in the neck, etc. Aside from the risks of such an interference, it is abhorrent to our feelings to propose such mutilation, the result of which would be almost worse than death.

In comparison with such an operation on the face the operation for carcinoma of the breast is far less mutilating even though the bulk of the tissue removed exceeds many times that removed by continuous dissection of a large carcinomatous block of the face. Also the risks attached are quite different. The operation for carcinoma of the breast as carried out to-day has very slight inherent risk. The removal of the soft parts is practically free from risk and the success of such operations is limited only by the accessory risks produced by the anesthetic, infection, air aspiration, etc. The moment we decide to increase the chances of radical cure by enlargement of the carcinomatous block, and remove, for instance, the whole thickness of the chest wall (as we often do in operations for recurrent carcinoma of the breast), the inherent risks become enormously greater, as well as the accessory risks. Collapse of the lung, displacement of the heart, difficult technic of closure of the wound have then become inherent risks of the operation.

Longer anesthesia and restricted function of the lungs are some of the increased accessory risks. The fact that continuous dissection is carried out might improve the remote results, but the gain might easily be offset, in part or entirely, by the increased inherent and accessory risks.

The accessory risks from anesthetic or infection carried in from the outside are the same in carcinoma of the cervix as in other carcinoma operations. But the gravest accessory risk in carcinoma of the cervix is that of sepsis from the infected primary tumor. I am not speaking of the infection which might be carried into the peritoneum by dragging the infected cervix through the abdominal cavity. Proper technic has reduced this risk to a minimum. But there are two other ways in which infection can gain access to the peritoneum and the pelvic connective tissue in the course of the operation. One is the much-dreaded tearing of the cervix, complete or incomplete, and the other is the infection of the field from crumbling lymph-nodes, which in addition to the carcinoma have been loaded with virulent germs from the primary focus. There is very little doubt in my mind (though I have not been able to confirm this suspicion by actual microscopic observations) that virulent germs may lurk not only in suppurating lymph-nodes, but in lymph-vessels in their neighborhood as well. Even if it is possible to clean up a primary carcinoma of the cervix fairly thoroughly before the operation, I can not see how this danger of infection from infected lymph-nodes or lymph-vessels can be deviated.

In carcinoma of the cervix the enlargement of the block to the limits which I indicated in 1895 has improved the remote results wonderfully. But the improvement was at the cost of increased inherent risks from hemorrhage, injury to ureters and establishment of large wounds in the connective tissue. At the same time it has not been possible to make the dissection in carcinoma of the cervix a truly continuous one. Though we attempt to remove the lymph-nodes and the pelvic connective tissue in one block with ligaments, uterus, tubes, ovaries and vagina, the small amount of tissue which surrounds the glands often renders this attempt abortive. In addition thereto, the dissection of the ureters out of the broad ligaments unavoidably makes a breach in the principle of continuous dissection. And this constitutes another weakness of the operation for carcinoma of the cervix.

This weak point could be eliminated if we could make up our minds to force the continuous dissection by including the ureters in the carcinomatous block and resecting them every time. The reason that we do not do so lies in the simple fact that there is a limit of tolerance, I am tempted to say, of the operator as well as of the patient. The operation for carcinoma of the cervix, as it should be carried out, is the most extensive operation I know of in surgery. I am sure that the carcinomatous block in this operation, as I carry it out, is as large as anybody has ever made it, but it is not so large as I should like to make it. In fact, I am considering its enlargement at least in the direction of the pelvic diaphragm and the paracolpium. This may mean greater demands on the tolerance of the patient, and it would be highly desirable to have some means of determining beforehand the limits of this tolerance in individual cases. But so far we have no reliable means of determination, not even in a negative way. It is surprising how sometimes emaciated, anemic, cachectic women stand the most extensive operations, while others who seem in comparative good health will succumb. Neither blood-counts nor urinary examinations, neither examination of the circulatory system nor any other methods that I know of, are reliable.

To-day the surgeon who operates for carcinoma of the cervix in the modern way is well aware of the fact that the size of the carcinomatous block and the method of continuous dissection on one side tend to improve his remote results to a degree never before attained but he is also aware that the inherent and accessory risks of such operations in the absence of reliable methods of preliminary determination of the limit of endurance are bound to increase his operative mortality. Operative mortality and remote results therefore have the tendency to show an inverted ratio.

The better the surgeon's technic the greater things he may dare. The world, and even parts of the medical world, not to mention the patients and their families, are utterly unaware of the difficulties encompassing such work. It requires sometimes a strong sense of surgical duty to persist in this most difficult and risky field. No man with any conscience will undertake such operations without extensive experience in abdominal surgery. But the prize is worth striving for. To this moment there is only one cure for carcinoma of the cervix—the operation; and my patients operated on from five to fifteen years ago and well to-day are the best witnesses to this fact. The statistics of all modern operators show a rich harvest of patients surviving for similar periods. Let me repeat: there is no other treatment of carcinoma that can show such results. Therefore it is to-day wrong and unscientific to withhold the chance of operation from any patient with carcinoma of the cervix or to waste valuable time with any treatment except operation, and this in spite of all risks which the operation involves.

32 North State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HALL AND RIES

Dr. J. H. Carstens, Detroit: One woman out of eight dies of cancer to-day. Think of that! Dr. Hall's paper is opportune and essential. I have been trying to do something in that direction. We must talk cancer day in and day out. You cannot impress the people, you cannot impress the profession unless you talk and talk and talk and show them the fearful results. They are careless, they do not think about it. I have been advocating for several years that we set aside one day in the year as cancer day; that all the newspapers write about cancer, that all the ministers preach about cancer and that all the lay press write and print "Cancer, cancer, cancer," so that the people will be aroused and the profession will be aroused and these cases will have early attention. Cancer starts locally microscopic and then is the size of a mustard seed. Found early it can be removed and that is the end of it; but you must look for it. The medical profession neglects these cases. In Michigan I tried for a number of years to get the state board of health to issue a cancer circular. This was finally done and a circular on the symptoms and how to cure cancer was sent to all the physicians and distributed among the people. Now they have started this work at the meeting in Washington. I went to the lay editors and told them about the fearful mortality from cancer and asked them to write and publish the matter and had them interview a dozen doctors, and they have written a number of articles and have stirred up the people about the cancer question so that they will be a little more vigilant. The point I have made is that if a woman has a slight discharge there is something wrong with her pelvic organs and she ought to give them attention. Some doctors are careless. I tell these women that if their doctor says, "Madam, I am going to examine you," and dissects away a little piece of tissue for examination he is a good doctor. That is the doctrine we must preach in season and out of season.

Dr. Walter B. Dorsett, St. Louis: I wish to say a word on the importance of making an early diagnosis of cancer of the body of the uterus. Dr. Hall spoke of the use of the curet by the family physician for the purpose of getting scrapings to make an examination. This I do not approve of at all. I believe that a physician should be ready to operate when he has done his curettement, not stir up matters to-day and operate next week. I am impressed with the importance of this matter from the knowledge of three cases. In one a physician attempted to curet with a sharp curet for the purpose of making diagnosis, and he punctured the uterus. The patient died. In another case I myself punctured the uterus with a curet, thinking that possibly I had a retained placenta to deal with. I immediately opened the abdomen, removed the uterus and saved the patient. Other cases of this kind have been mentioned. I believe that the curet is an instrument which can be used for diagnostic purposes under proper conditions, but whenever it is used the physician should be ready to do a major operation as soon as he has finished the curettement, if any accident should occur. Even if nothing has occurred, the operation should be done in a short time afterward.

Dr. G. Betton Massey, Philadelphia: I wish to emphasize the importance of what was said by Dr. Dorsett about the danger involved in making a diagnosis by the curet. That practice will probably be continued until surgeons act fairly on their own convictions of the parasitic nature of cancer. As was stated the other day by Willy Meyer in a cancer discussion in New York, pathologists still deny the parasitic nature of cancer, but surgeons regard the disease as parasitic. I wish to emphasize strongly my own conviction that if they believe in the parasitic nature of cancer they are acting wrongly to curet these growths. No cancer should be wounded until preparations are made for immediate destruction or removal. I submit that until the parasitic nature of cancer is disproved, the history of cancer operations reflected here, particularly in the pelvis, compels us to assume that it is parasitic, and to adopt such precautions in operation that these parasites shall not be transferred living to the cut edges of the wound.

Dr. William J. Mayo, Rochester, Minn.: I was particularly interested in what Dr. Ries said in regard to the foundation for an operation for cancer and the reason for doing a block dissection. I agree with him that up to the present time the experimental work on cancer in animals and plants has not been of great value as an aid to clinical diagnosis or to treatment, but I do believe that this work will finally lead to the solution of the cancer problem. We cannot experiment on the living human being. If those of you who are interested will go to the other side of this floor, you will see an exhibition of plant cancer, which to my mind is the greatest piece of research work on cancer which has ever been demonstrated. This work has been done by Dr. Edwin Smith of the Department of Agriculture, Washington. Dr. Smith has been able to produce, by a species of bacteria, cancer in plants which agrees in many essentials with what we know of cancer in the human being and of cancer in the animal which has been produced experimentally. These bacteria produce cancer, but only when there is traumatism or irritation at the point of introduction. He has shown that these bacteria stimulate growth in the plant; they respond by throwing out an unlimited number of embryonic cells, that is, a true cancer. In plant cancer the bacteria die and the endotoxins in their bodies stimulate the plant cell-nuclei, which take on a fresh growth, and this process goes on indefinitely. Dr. Smith's splendid work, taken in connection with Auer's work on cancer in chicken, gives an interesting picture. In his experimental work, Auer tried to produce the disease as we see it in the human being, but he could only cause tumor at the point of injection. He then added to the injection the skeleton of diatoms, which produced mechanical irritation of the tissues. He was then able to demonstrate multiple cancer lesions. No case of cancer of the skin has been reported that did not develop on a previous lesion. It must be the same in the internal surfaces of the body. It is to be found in the mouths of persons, both male and female, who chew the betel nut, and on the lip of the pipe smoker. It is prevalent in natives of Kurdistan on the skin of the abdomen, the result of heat irritation from the charcoal warmer they use. We have further examples in ulcer and cancer of the stomach, gall-stones and cancer of the gall-bladder, myomas of the uterus and cancer of the corpus uteri. It is said that the savage people do not suffer from cancer, which is probably not true, since their economic necessities make cancer the means of speedy death.

Dr. John B. Deaver, Philadelphia: I believe that in a certain proportion of cases of cancer of the fundus the pathologist in examining the scrapings, like the surgeon, makes mistakes in his interpretation. In those cases of uterine bleeding in which adnexal disease and gross disease of the uterus can be excluded, but in which there is question of doubt, I make a hysterotomy, and in this wise am sure of the condition of the interior of the uterus.

Dr. C. O. Thienhaus, Milwaukee, Wis.: It cannot be too strongly emphasized that a microscopic examination is the authentic proof of malignancy or non-malignancy. When the general practitioner sends a specimen of diseased tissue to the pathologic anatomist for microscopic examination he should know how to excise that specimen. He should not merely snip off a little piece of tissue, but should also see to it that the specimen for examination contains that part of the tumor or ulcer in which the normal tissue transgresses into the diseased tissue.

In regard to removal of glands in cases of cancer I should like to say this: Nobody removes a cancer of the breast without cleaning out the lymph-nodes in the axilla. Nobody removes a cancer of the tongue without paying careful attention to the removal of the lymph-nodes in question; nobody operates for cancer of the anus or clitoris without cleaning out the inguinal region. In the same manner in cases of cancer of the uterus the glands in the abdomen must be removed, and the removal of those glands has given the Ries-Wertheim operation the high standing and preference above all other operations for cancer of the uterus. Of course, often lymph-nodes may be swollen and still not be infected by cancer. This we find in cases of cancer of the stomach. I observed a case similar to that mentioned by Dr. Mayo this afternoon. After opening the abdomen I found a large immovable mass in the posterior wall of the stomach together with swollen lymph-nodes. I performed an anterior gastro-enterostomy, believing that the patient would die within two years. After three years, however, he walked into my office looking well and feeling well. Our diagnosis of cancer of the stomach was wrong. We had to deal with an ulcer.

Dr. John A. Lyons, Chicago: The cautery knife should be the instrument of choice in these desperate cases, in order to block the lymph-channels, prevent dangerous hemorrhage by plugging the blood-vessels and severe pain by sealing the cut nerve-supply. In these cases the knife, scissors and especially the curet should not be used.

Dr. Bertha Van Hoosen, Chicago: From the papers we have just heard we should be led to believe that the symptom of the first stage of cancer is a profuse discharge. I believe that the symptoms of the first stage of cancer are nil, and for that reason we shall have to do a great deal of educating of the public before we shall ever get cancer in its first stage. Not long ago a patient came to me with dysmenorrhea. I curetted as a matter of routine and sent the specimen to the laboratory. To my surprise the report was cancer of the body of the uterus. I thought that it must be a mistake, but proof was given from the examination of the specimen after removal. Shortly before that in another case I had removed a small piece from the cervix which was suspicious, but found no cancerous tissue. I proceeded on that diagnosis to amputate the cervix and do other plastic operations for prolapse. The removed cervix was sent to the laboratory and, in parts not suspicious, cancer was found. We are also taught a great deal about the age from 37 to 47. I saw within the last two years an inoperable carcinoma of the cervix involving the whole of the body of the uterus and all the lymph-nodes, and sections showed a far-advanced cancer of the cervix, in a patient not yet 20 years of age. I think, in view of some of these conditions, that it behooves the profession not to appeal so much to the laity, but to practice more routine examinations on all tissues removed from the pelvis, to discredit age and hemorrhage and to look for carcinoma everywhere and anywhere.

Three weeks ago I operated on a patient who had a small lump in the breast. It proved to be a medullary cancer. She also had a slightly enlarged prolapsed ovary. In this prolapsed ovary was medullary carcinoma. Panhysterectomy was done and the radical operation for the breast. Just exactly where the blocking of Dr. Ries comes in in this case I should like to have explained.

Dr. Henry O. Marcy, Boston: The cautery is used with much more safety if asbestos is employed to prevent the heat from being absorbed. I am reminded by the discussion that some years ago in my bacteriologic research work I developed an organism that without question originated in cancer. It "bred true" through several reproductions. Unfortunately, however, I failed utterly in securing its reproduction in the lower animals.

Dr. R. B. Hall, Cincinnati: I grant that Dr. Dorsett is correct in his statements that in these cases patients should not be curetted promiscuously. In my paper I did not speak of the curet in any sense in connection with the diagnosis of cancer late in the disease; I was talking about the early symptoms in these cases. This paper is made up of records of every patient I have had in my office in twenty-five years. These tabulated reports are absolutely correct. The symptoms mentioned in the paper do occur in the early history of cancer just as tabulated, and, if we get the profession at large to consider them, we shall make diagnosis of cancer of the uterus much earlier than heretofore. It is the general practitioner who first sees these cases, and he has the destiny of the people in his hands. I do not curet for diagnosis of cancer of the cervix. It is not necessary, as a rule. Cancer of the body of the uterus is a different proposition. In many cases it is not possible to make a diagnosis early in the disease without curetting. In the case in which there was perforation in the body of the uterus, disease had existed for a long time. There was a large cancer mass when the uterus was curetted. There was no normal uterine tissue left. That was not an early case; it was later in the disease. If one did occasionally perforate the uterus in his effort at a correct diagnosis, would it not be vastly better than to have this great number come too late for operation because no attempt had been made to make a correct diagnosis early enough to render the proper treatment? I think that it would.

Dr. J. F. Percy, Galesburg, Ill.: To me the most important sign is inability to move the mucous membrane over the cervix. I have never seen it mentioned in text-books. I do not believe that it is original with me, but it is a most valuable point. If one cannot move the mucous membrane over the underlying structures, malignancy is almost certainly present. Within two years a woman came to me with procidentia, a complete dropping of the uterus out of the vagina. On the cervix there was a small carcinoma. I cauterized that cervix merely by sticking one of my small cautery irons into the cervical canal. Then I fastened the vaginal walls to the broad ligaments, and removed the uterus. I felt comfortable, believing that I had done the right thing. Within six weeks that woman's pelvis was full of cancer, and within three months she died. I am getting cases after hysterectomy. Within five months I had a case in which the pubic region stood four inches above the level of the abdomen. The woman was cachectic and in a condition you can readily imagine. I stuck the cautery iron up through the vault of the vagina and allowed it to cook there for forty-five minutes. My assistant tried with his fingers to get around the mass in the pelvis. There were metastases in the liver and everywhere else. The woman recently died. but she died comfortably because I had inhibited the rapid progress of the disease. I saw a woman recently who was only 28 years of age to whom three different physicians had been giving local treatment for a year and a half. The only reason for discontinuing these treatments was that they caused so much hemorrhage that she became frightened. You can do nothing with the knife for a growth like that

THE RESPONSIBILITY OF THE DENTIST AND PHYSICIAN IN REGARD TO MOUTH INFECTIONS AND THEIR RELATION TO CONSTITUTIONAL EFFECTS *

THOMAS B. HARTZELL, D.M.D., M.D.
MINNEAPOLIS, MINN.

The human mouth is the largest portal through which infectious micro-organisms may enter the body. Almost all varieties of pathogenic bacteria have been found in the human mouth. The gastric juices afford little protection against them. Charles Mayo[1] says:

> Microscopic examination of gastric extracts made by Smithies from 2,406 different individuals with "stomach complaint" (dyspepsia, indigestion and the like) showed that irrespective of the degree of acidity of such gastric extracts, bacteria were present in 87 per cent. Morphologically cocci and diplococci were present in 83 per cent.; short and long rods (often of the colon group) in 58 per cent.; typical streptococci and staphylococci in 17 per cent., and *Leptothrix buccalis* in 24 per cent. In fifty-four cultural studies of saliva from "dyspeptic" patients, streptococci and staphylococci were demonstrated in over 80 per cent., bacilli in 66 per cent., and *Leptothrix buccalis* in more than 14 per cent. Comparing these figures it would appear that the common forms of pus-producing organisms (streptococci and staphylococci) have their proliferation retarded in gastric juice, but that bacilli (often of the colon group) as well as *Leptothrix buccalis* thrive in the stomach.

There is no protection to the organism where an actual lesion exists except that afforded by the leukocytes. The leukocytes in time are overcome in their effort to oppose the destructive effects of micro-organisms. The almost universal presence of small lesions contiguous to the teeth which afford foot-hold for pathogenic bacteria which by any chance gain entrance to the mouth, makes it doubly worth while to study the paths which the bacteria must travel to gain entrance into the circulation. A brief glance at the tissues in question will serve to accentuate the importance of a closer study of mouth infections.

ANATOMIC AND PHYSIOLOGIC CONSIDERATION

The teeth occupy sockets in the alveolar bone, which is built up around the teeth as they erupt. This bone is of a loose, porous character and has very thin edges; on the whole, an insecure frame-work to support the great stress of mastication, amounting to hundreds of thousands of pounds in the course of a year, which the teeth must bear. The teeth are suspended in their sockets by Sharpey's fibers, yellow elastic tissue, which is a ligament of suspension, plentifully supplied with blood through the alveolar process and also through the mucous membrane, the vessels dipping down into the ligament of suspension over the edge of the socket. In this membrane are resident certain glandular structures first described by Black. These glandular tissues are in direct continuity with vascular channels leading out into the mucous membrane and alveolar process. Therefore, any infectious material on the teeth themselves or accumulated between the teeth, at the free margin of the gum, has an uninterrupted avenue of entrance into the deeper structure of the jaw. The continuity of the vascular channels leading from the periodontal membrane into the deeper structures is readily demonstrable by the injection of pure oxygen gas under the gum margin by means of a blunt-nosed needle. In this way one can trace these vascular channels through the alveolar process for considerable distances. Therefore, the pyorrhea pocket, which is an ulcerating infected surface full of micro-organisms, or the alveolar abscess, which usually occurs in the apex of the socket around the root-end, are both capable of introducing into the circulation the severest types of infection. If we bear in mind the conical nature of the tooth-sockets and the fact that the tapering roots filling these conical sockets support structures which in every twenty-four hours of the ordinary individual's life may bear a stress of from five to ten thousand pounds, one readily comprehends how infections in the periodontal membrane or about the apices of the tooth's root are forced into the general circulation and lymphatic channels, leading from the teeth in their sockets. The direct lymphatic drainage of the tissues contiguous to the teeth is the most perfect in the whole body, affording direct access to the deeper structures of the neck, maxmilla and mediastinum, thereby making it possible for micro-organisms, introduced into the tissues through a pyorrhea pocket or apical abscess, to travel uninterruptedly into the deep structures of the body. Not only do the lymphatics afford direct access for micro-organisms to the circulation, but the rich plexus of blood-vessels supplying the periodontal membrane and alveolar process invariably suffer from the destructive activity of pus-forming bacteria, opening the blood-vessels themselves to the entrance of germs which are injected into the broken ends of these vessels by the powerful stress of occlusion during the act of mastication, thus making the spread of bacteria in the circulation a certainty. The elastic nature of the periodontal membrane makes it possible for the teeth to bear the shock of mastication for many years longer than they possibly could were they ankylosed into the bone. But this same elastic quality in the periodontal membrane favors the introduction of infection. For, if there is infectious material around a root end, or about the side of a root in a conical socket, and a weight of from 10 to 250 pounds is applied to the occlusial end of such a tooth, the elastic quality of the membrane permits the tooth to sink down in its socket so that the root acts as a plunger, injecting the infectious material into the surrounding tissues.

---

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Mayo, Charles H.: Constitutional Disease Secondary to Local Infections, Dental Review, April, 1913, p. 281.

The teeth themselves afford many square inches of surface for bacterial protection and growth, as they measure in a full denture about 20 linear inches in circumference, and, where destruction of the bony socket attains a depth of an eighth of an inch, we have the equivalent of 2½ square inches of cultural space beneath the gum margin. The necks of the teeth above the gum margin, protected from attrition by the broad bell-shaped occlusal portions of the teeth, afford easily from 2½ to 3 square inches more space on which bacteria may accumulate. This bacterial accumulation on the necks of the teeth is rarely noticed or appreciated, unless some special method of staining is adopted to reveal the presence of micro-organisms. If one desires to appreciate the enormous possibilities for bacterial growth on the necks of the teeth, one should apply a stain which will at once bring into view the bacterial coat always present on these surfaces.

STAINING METHOD

The best disclosing stain for revealing bacterial presence on the tooth's surface is iodin, 45 grains, zinc iodid and potassium iodid, of each 15 grains, water and glycerin, of each 4 ounces.

A cotton sponge dipped into the disclosing stain and applied to the necks of the teeth instantly brings into view a heavy brown coat on the teeth, which, before the application of the stain is made, may seem white and clean.

I advise physicians and dentists who are in doubt as to the cause of the marginal inflammations of the gum and underlying bone to apply always the above disclosing stain, after which the mouth should be rinsed with water, which will leave in clear relief whatever bacterial coat the teeth may at that time bear. If this practice is followed, the observer will be impressed with the constant presence of areas of inflammation and deep pockets of destruction in the alveolar process and bone contiguous to the necks of those teeth which bear the heaviest bacterial coat.

PATHOLOGY OF MOUTH INFECTION

The enormous surface for bacterial growth on the teeth and the protected areas between the teeth and the deep pockets which form in the presence of the heavy bacterial coat which these protected surfaces usually bear, give rise to a multitude of organisms, which of necessity pass into the stomach and bowels, and frequently alter, by their products and presence, the whole chemistry of digestion, so that an infected mouth may produce four distinct pathologic effects as follows:

1. That produced by the dissemination of bacteria through the medium of lymphatic drainage.
2. That produced by bacteria through the open blood-vessel.
3. That damage sustained by the individual through the change in the chemistry of digestion caused by bacterial poisons.
4. That produced by a general bacteriemia which not infrequently is a direct result of the dissemination of bacteria in the blood-stream.

I would not contend for a moment that all the ills to which human flesh is heir may be traced to mouth infections, but I have observed many cases of general infection of different characters which have been traced directly to mouth infections. The ordinary mouth infection may result in the loss of the teeth only, and the general harm resulting from such infection may be only slight. Statistics gathered by me show that there is about one case in every ten in which severe constitutional lesions occur, lesions which are usually overlooked both by physician and dentist, traceable to the mouth. I present herewith the analysis of one thousand and twenty cases of mouth infections:

SUMMARY OF FINDINGS IN 1,020 CASES OF MOUTH INFECTION

It is to be remembered that in the locality in which this experience has been gathered, the population is a young and vigorous one, as compared to the population of older countries, and the death-rate is lower per thousand on account of this fact. Here, the proportion of aged people to people under 40 is much less than that of older localities. Of the one thousand patients observed, few were bed-ridden. In the following deductions, these facts were kept in view. Over half, or, to be accurate, 600 seemed to be absolutely healthy and normal in every way except in the matter of teeth and gums. Caries was more or less prominent in the whole number, and marginal infections, with a greater or less destruction of alveolar process, were common to all of them. There were no marked physical symptoms of ill health, aside from indigestion or mild forms of gastric irritation. As a rule, on correction of the mouth infection, all these symptoms disappeared. Of the remaining four hundred, 300 gave evidence of more severe physical disturbances, though not severe enough to warrant sending them to a physician, or a more careful scrutiny of their habits of life than treatment of the mouth lesions and the proper rebuilding of the masticating mechanism. In the remaining 120 cases a great variety of physical ailments was observed, and physical examinations were made. The following lines of inquiry were noted and any facts which such inquiry elicited were tabulated: occupation, habits, general systemic condition, temperature, urinalysis, oral history, condition of the nose and throat, quality of the saliva, occlusion, the presence or absence of deposits on the teeth, and the character of such deposits, if present. Note was also made of undue stress, loss of function, prosthesis existing, and the prosthesis needed. The urinalysis involved a consideration of the total bulk of urine in twenty-four hours, its specific gravity, and examination for albumin, sugar, and a search for casts. The physical examination further sought to reveal or explain the systemic conditions which were found to exist in each individual case.

In eighty of these cases, the disturbance ranged over the entire alimentary tract, some patients being chronic sufferers from constipation, others from the opposite condition, namely, looseness of the bowels and diarrhea, all evidencing more or less malnutrition. Fifty had periodic and severe migraine, and the whole group suffered from more or less nervous irritation. Forty were of the extremely neurasthenic type. A considerable number of this group of 120 were also sufferers from chronic abscess. To be accurate, thirty-five had chronic apical abscess, and twenty had severe pericemental abscess as well. Sixty of them gave a history of rheumatoid pains, called by some of them neuralgia, by others rheumatism. In eighty cases, no kidney involvement or abnormal change in the urine was observed. Without exception all were benefited by treatment, showing a marked recession of constitutional symptoms on removal of abscessed and hopelessly loose teeth, and on surgical treatment of those teeth remaining which were worth treatment, followed by careful postoperative care of the mouth. Of the remaining forty cases, all showed greater or less kidney involvement, ranging from a trace of albumin to a considerable amount, with casts. Ten showed the presence of sugar. Twenty showed specific gravity of urine ranging from 1.020 to 1.035. Twenty revealed decreased specific gravity, with a corresponding increase of bulk in the twenty-four hours. Three were suffering from septicemia, and died of septic endocarditis. One died of septicemia without heart involvement. This was a recent case, in which bacteria were found in the bloodstream on culture, which bacteria were identified with those found in the pockets about the teeth, and also in an area of necrosis located about the two upper central incisors. Of this group of forty, twenty patients had pronounced joint involvements, ten of which were distinctly improved by treatment; one might, in fact say, cured. Five were improved and five not benefited. Of these forty cases, nineteen patients showed albumin in the urine before the mouth infection was attacked, which cleared up after the stamping out of the mouth infection. One of these patients had been suffering from ulcer of the stomach, the diagnosis of which was made by an exceedingly competent medical adviser, and was of two years' standing, though believed to be much longer. In this particular case, albumin was present in the urine. This patient suffered an intractable constipation, accompanied by a marked failure of stomach digestion. He yielded to treatment readily and after a period of two months gained in weight over 20 pounds, and lost all evidence of tenderness in the abdomen over the area where stomach ulcer was believed to exist.

A recent case is of great interest. The patient, a banker, suffered severe pain in two of the lumbar vertebrae, accompanied by pain and soreness in the wrist, elbow and finger joints. He made no material improvement until several abscesses, abscessed teeth, and pus infections in pyorrhea pockets were eliminated, after which he made a fairly rapid and satisfactory recovery. This patient was a man 58 years of age, and the total period of his incapacity from business had been eight months. For four months of this time his suffering was exceedingly acute, being bed-ridden. On account of the great tenderness in the vertebra, he was allowed to turn over in bed only once in twenty-four hours. Tuberculosis was not present. None of the symptoms bore out such a diagnosis.

In another case, the patient, a man of 62 years, suffered from a persistent and destructive inflammation of his left eye, having continuous pain for months, gradually losing the sight of the eye, and suffering intense pain radiating from the eye to the occipital region and down into the neck and shoulder. An abscess was finally located in the lower mandible near the mental foramen, involving the inferior dental canal. The opening of this abscess resulted in complete freedom from pain and a fairly rapid recovery after an illness of five months. The patient regained his bodily strength and vigor, but never regained the sight in his left eye.

There really seems to be no function or tissue of the body which may not be reached by infections occurring in or originating through lesions in the oral tissues. It seems eminently proper, therefore, that physicians should scrutinize more closely the mouths of their patients in all their routine examinations; insist on radiographic examination to discover impacted and diseased teeth; and insist on the extraction of diseased teeth, unless the patient is in the hands of a competent dentist who comprehends the vital relation which diseased and impacted teeth bear to the general health of the individual.

ABSTRACT OF DISCUSSION

Dr. Joseph Head, Philadelphia: The time has come when the dentist no longer considers as his chief work the restoration of teeth for the purposes of mastication. His primary work in the future will be to rid the mouth of infection, in order that the system may not be subject to diseases that, with the proper method of treatment, could be prevented. The point which Dr. Hartzell made, namely, that physicians should examine the mouths of patients to see if pyorrhea is present, is well taken, but I would add that dentists must feel that the examination of the mouth for infection takes the most subtle discrimination and analysis and requires all the technical skill and special knowledge of a dentist and a medical man combined. I had an interesting case in point a few weeks ago. A doctor came to me with a tonsil enlarged to three times its normal size and told me that he thought that he had pyorrhea. I looked into his mouth and it seemed perfectly healthy. There was apparently no disease of the gums. Finally, I probed between the wisdom tooth and the twelve-year molar; the probe went up past the buccal roots into a large pocket. The patient was particularly anxious that I should make a vaccine, so I took the proper amount of material from the walls at the base of the pocket and then made an application of ammonium bifluorid to the pocket. In a week the patient came back with the expectation of having me use the vaccine, but when I looked into his mouth I found that the tonsil had been reduced to its normal size and there seemed to be no other condition of infection present. The pyorrhea pocket was cleaned up. When the contamination from the tooth was removed the tonsil regained its normal condition.

Dr. T. L. Gilmer, Chicago: I think that the pathology of the teeth has been pretty well understood in the past, but aside from this the mouth has received insufficient attention. The average mouth may look healthy, but I venture to say that, if a narrow, very thin explorer is passed between the teeth and gingivae, hardly a mouth will be found without some pockets about the roots of the teeth. These pockets arise from slight traumatism. We often find in the lingual gingivae of the upper central incisors slight injuries which become pyorrhea pockets. Had these injuries been found in time and the cause removed, a more serious infection, or a pyorrhea pocket might have been obviated. Fortunately of late a real interest is being exhibited by dentists in the condition of the mouths as well as the teeth of their patients.

The members of the Northern Illinois District Dental Society are making a systematic examination of mouths to determine the extent of pockets about the teeth. This must lead to good results. When the physician more fully comes to realize the dangers from foci of infection in the mouth, which not infrequently leads to serious pathologic manifestations in other parts of the body, he is going to examine the mouths of his patients more carefully. The average practitioner of medicine is not sufficiently skilled in oral examinations to make a really critical examination of the mouth. He should supplement his work, when he suspects that the mouth may contain a focus of infection, which may be the cause of disease elsewhere, by calling to his assistance a well-qualified dentist, just as he would call in a rhinologist or an ophthalmologist if he wished the nose or the eye examined. On the other hand, the dentist ought to look more carefully into the physical condition of his patient when he finds chronic infections in the mouth to determine whether the oral condition may not have caused some manifestation of disease, in order that he may refer the patient to a skilled general practitioner, if necessary. All diseased and unclean mouths should be made clean and healthy. This ought to be done regardless of the loss of teeth. Teeth are very important organs and should not be removed ruthlessly, and most mouths may be made healthy and the teeth saved, but health and life are much more important than teeth.

Dr. F. B. Moorehead, Chicago: There is a definite antecedent in this condition which we are trying to correct, I think, by working at the wrong end. When I was a student the emphasis was not placed on the possibility of the mouth as a disease-producing factor, but on the necessity of a fine gold filling, of accurate adaptation, of partial plates and full dentures, and the accurate construction of crowns and bridges. We do not gain anything by criticizing our forbears. This is a matter of evolution. Therefore it is not proper to condemn the dental profession of those days, but it is only fair to say that they gave insufficient attention to the pathologic side of the profession and overemphasized, overstated, the mechanical side—if you can make that distinction. This attention to the mechanical side was born and bred in them as students, and it is difficult to get away from such training unless one is a student all through life. One may go into a dental college infirmary to-day and witness students at work putting crowns and bridges into mouths that are in a terrible condition, the teeth covered with tartar and pyorrhea pockets filled with pus. I am not overstating the facts. Our schools should insist that after the student has relieved the patient's suffering he must see that the tissues in the mouth are made healthy before he attempts anything in the way of construction of mechanical aids to mastication. If this is emphasized and insisted on the student is going to get the point of view that he should have. Then we must demonstrate to our students the infections that are being discovered to-day that can be traced directly to the mouth. It is possible, of course, to overstate the question and do ourselves harm by saying that the mouth is responsible for everything; but the statement that the mouth is, perhaps, the most important single avenue of infection in the body will, I believe, bear close investigation. There are, however, other avenues of infection — the adenoid tissue, the tonsil, the pharynx, the prostate and many other areas that must not be lost sight of. The work that is going to accomplish most in the future is the proper training of the dental student.

Dr. Nelson T. Shields, New York: If I remember correctly, Dr. Hartzell said that quite a large percentage of his patients were neurasthenics and that 40 per cent. of 120 neurasthenics showed the direct relation between the neurasthenic condition and infection in the tissues around the teeth. For the perfect treatment and care of the mouth all calcific deposits should be removed, and thorough prophylaxis should be established. If in that treatment a part of the root is exposed, the treatment is liable not to end there. If this should give temporary relief, well and good. If the patient should have an infected gum within a short period afterward, and the infection cannot be controlled by external applications or constitutional treatment, with the help of the physician, then you should look for the internal injury which would be within the pulp itself, because you cannot have an exposed root without having the calcific deposits within the pulp. This will induce an abnormal flow of blood through the arteries and also an immigration of leukocytes, which cause compression on the veins within the pulp, and this likewise causes calcification by irritating the odontoblastic cells. This classification, if the constitutional cause is not removed, will eventually cause the calcification of the entire pulp, which naturally means death to it. So that in the neurasthenic cases, gum infections are apt to be caused by the canaliculi extending entirely through the dentin to the cementum, and can be caused from within the pulp from constitutional causes as well as from local causes which are manifested on the outside of the teeth. In severe cases I would extirpate the pulp of such teeth, and after thorough cleansing of the root-canals mechanically, would fill them to their apexes with gold, and the remaining portion of the canals with the oxychlorid of zinc.

Dr. William C. Fisher, New York: I think that, without a doubt, we should excuse the teachers of years past on the ground of progress, but we cannot excuse those who are teaching the same things to-day. The members of this Section were recently invited to the meeting of a state examining board. One of the examiners took two or three of us to a chair and exhibited a new method of crowning. In passing a mirror around the mouth I saw one of the filthiest mouths I have ever seen in a clinic. A student was being taught to do but one thing in that mouth — to make some new character of cast crown that some particular skill has brought out. I remarked to the examiner, "My, what a wonderful case for a prophylactic clinic." He said, "Yes, it would be a rather good case for that, but we are just holding a crown examination to-day." What conception of dentistry can that man have if a state board of six men will license him to put a crown into a mouth without making any effort to remove the calcareous deposits and reduce the hemorrhagic condition of the gums? One lateral was almost completely hidden posteriorly by the congested gum; but that had nothing to do with the examination they were holding that day. How much better to say to a student or a graduate, "Here is a mouth; place that mouth in a healthy condition," and see what procedures he would take.

Dr. C. H. Oakman, Detroit: We who knew Dr. Harlen and who had the privilege of being his students know that prophylaxis was the fundamental teaching of his work, although he did not use the term prophylaxis. "When the patient enters your chair, examine the mouth carefully and see that the mouth and teeth are properly cleaned before any reparative work is done." This was his teaching; he was far in advance of the times and now, after twenty-two years, his teaching has become almost universal. Dr. Fisher just said that state dental boards are lackadaisical in some of their work, but we who have served on state boards for a number of years would like to do many things which are absolutely impossible. We cannot put a mouth into a hygienic condition when we have an urgent case to complete in a limited time. I think we are just awakening to a realization of the treatment of pyorrhea alveolaris. Possibly all of us, who have treated pyorrhea, have treated cases repeatedly and have met with no definite result. We discharge the patient after a dozen or more treatments, telling him to return in thirty or sixty days. At the expiration of that time the condition of the gums about the cervices of the teeth and other pathological conditions show that our progress in their treatment was quite unsatisfactory. I have in mind three cases of this kind which I treated. I had the urine tested and in one case found that the patient had 6 per cent. sugar and another 3½ per cent.; the third went to Carlsbad with 4 per cent., but after treatment there returned with the urine free from sugar. These cases were not amenable to treatment while the sugar condition was apparent, but after its elimination two of the cases readily yielded to treatment. I now make it a practice to have the urine examined in all suspected cases. Dr. Talbot says, and I think he is right, that a great many of the so-called cases of pyorrhea are no more than cases of gingivitis. There will be no pyorrhea if we can eliminate gingivitis early in the case. It is only when we allow that condition to persist that pyorrhea is developed.

Dr. G. V. I. Brown, Milwaukee, Wis.: I think that Dr. Fisher is unreasonable. He has evidently forgotten that these men are not teaching. They are supposed to let the applicants do as they wish to do, marking them accordingly. I think that it would be out of place for an examiner to take up that matter with the applicant. On the other hand, take the applicant's side: he has only a limited time in which to do certain things; there are a great many other things which he might do in his office. I think that when Dr. Hartzell undertakes to say what should and should not be done in this matter of oral hygiene he should remember that in order that this may be done to the best possible extent, an exceedingly delicate skill in diagnosis is required. It seems to me that that is the weak point in this paper, and that the purpose of this section ought to be in the direction of trying to make it easier for physicians and dentists to come together on a common plane, so that the knowledge of both may be applied in these cases and a great many of them relieved. For instance, I have just had a case of a little one who gave a history of a recent tonsillitis and of the injection during the course of treatment of large doses of antitoxin. After a short period of rest a swelling appeared which involved the region of the neck, the submaxillary region and all the regions to some extent behind and above the angle of the jaw; to complicate the condition still more a dentist had been consulted and had opened into a deciduous molar. The deciduous molar was then undoubtedly involved, whether or not it had been previously. At any rate, the treatment of the case through that deciduous molar, if it were an infection from the tonsillitis, would not have done any good. The patient's urine showed acetone, diacetic acid and albumin; in other words, that little child was in a condition in which the giving of an anesthetic was almost prohibitive. This is just the sort of thing that occurs when the physician and the dentist work separately. In this case a condition of things had been brought about in which it was almost impossible for anyone to make a diagnosis, and so I did what anyone would under the circumstances. The condition of the kidney was definite. I kept the child quiet, on proper diet and carried her through nicely. We finally found pus, and after its evacuation later—there were two or three ounces—we were pleased to find that in the culture it showed no growth.

Dr. William C. Fisher, New York: We had an address from our chairman yesterday which pointed out the great need for work along the lines of Dr. Hartzell's paper. We have all been talking of and wondering where we could get men to do this work, and we said that we would have to educate them. The minute a man criticizes what is being done by the state board, he is censured for it. Dr. Brown made the statement yesterday in private that if one hundred dentists were invited to this room, 25 per cent. could not discuss the papers here. They will not be educated to discuss these scientific papers if the making a crown is the main requirement for getting a license. I want to reiterate that I consider an examination of this kind unfair to the applicant and to his alma mater, and to the persons he is to serve. We do not want good jewelers. My hat is off to the prosthetic men; they did good work in the past. They laid the foundation on which we have built our profession. This side of our work should not be slighted, but the pathologic side is still being slighted by our state boards.

Dr. Truman W. Brophy, Chicago: The teachings of Dr. Hartzell's paper are living issues. They will be quoted by men in the profession everywhere. His conclusions, I think, are logical. The discussion which has followed has, it seems to me, been in part rather unfortunate. Dr. Fisher brought up a phase of the subject of prophylaxis which, it seems to me, should be carefully considered by this Section. I know quite well some things about dental teaching and the work that has been done for more than a quarter of a century in dental colleges, which have made American dentists famous throughout the world. I know that the American dental college professor in other lands is respected and regarded as an honorable man. We know that the good status of our profession to-day throughout the world has been due more to the work of the honest dental college professor than to any other factor, and as a dental college man, one who has spent the better part of his life in assisting in this great work of dental education, I regret that any man should criticize, not only the college man, but also the members of boards of examiners, who are working with all their might to advance the interests of the profession and protect the people from the charlatan. When a man stands on this floor and says that the board is neglecting what he believes to be a duty, he does not remember that for over a period of two weeks this board has been laboring hard with these men right along the very lines that he says are neglected. More than one hundred candidates are here before the state board, as I understand it. They have not the time nor the opportunity here to enter into the study of pathology or carry out a long course of treatment. They have been through that in their written examinations, and to-day they are doing the practical work which the board demands. These are facts which we cannot overlook, and the members of the board are all to be commended for their self-sacrifice, their devotion, and their earnest labor to see to it that these men, now having completed their written examinations and answered all the questions as best they knew how, are now tested as to their practical merits.

Dr. A. T. Rasmussen, La Crosse, Wis.: This controversy regarding the duties of the state board makes me feel sorry for any state board. I was one of the men to take the examination in the state of Wisconsin, and I really cannot forgive myself for the way I treated that case. I knew it was wrong. I said to the examining board, "Gentlemen, it will never do." One member said to me: "We have no other patient; go to it." What the results were I do not know. We were short of material. One of the remarks Dr. Brophy made was in reference to practical things. I think that we ought to do away with the discrimination between practical and theoretical dentistry. Pathology is practical. We must have a working knowledge of pathology if we are going to treat diseases of the mouth, or any other part of the body. I am not criticizing anybody for the use of these terms. I use them myself inadvertently, but I think that we should aim to get away from the idea that pathology is not practical.

One other thing I wish to speak of is this: In some of these clinics there is no provision made for washing the hands, and it is not right for men to put their hands in the mouths of patients without washing them. If we will look after these so-called little things, the big ones will take care of themsleves.

I think Dr. Moorehead struck the keynote of the whole situation when he said, "unless we are students through life." Unless a man is a student through life, he has no business in the profession—either medical or dental.

Dr. C. H. Oakman, Detroit: For the inspection of the teeth of schoolchildren in the city of Detroit we have four dentists who never use a mouth-mirror. If an inspector uses one and it becomes known to the Board of Health, he will be censured. Instruments of any kind are not permitted in their work. Wooden tongue-depressors are used and discarded after being used but once. In this way there is no infection. Neither is it necessary for the operator to put his fingers in the child's mouth. It is impossible to make a thorough examination of the teeth in this manner. We do not intend to make as thorough an examination as if the patient were being examined at the clinic. If the mouth is unhygienic, teeth covered with tartar, food deposits, etc., it is absolutely impossible for an inspector to make a comprehensive examination. What we aim to do is to find the defects, and then refer the patients to their dentist or to the clinic. At the same time we place in the child's hand a pamphlet on oral hygiene which it is instructed to take home, so that the parents may be enlightened on this subject.

Christian Scientists did not want the children's teeth examined by the medical department, so as soon as the child brought a note from the parent saying that it was not necessary to have the teeth examined, according to their way of thinking, they were not molested. But I think in all clinics where a wooden tongue-depressor can be used the mouth-mirror should never be used.

Dr. Thomas B. Hartzell, Minneapolis: I was informed by the secretary of this section that the section did not make a great bid for dentists as members, because the average dentist could not take part in a discussion and keep himself to the subject, and it has been beautifully demonstrated here to-day that this is the case. Two or three of you have not discussed my paper, so I will recapitulate briefly the thought of that paper and tell you why I wrote it. I wished to show that the mouth is the great portal of infection; that the continuity of lymphatic tissue leading from it makes it almost impossible for the remainder of the body not to be infected from it if lesions exist therein, and I wished to bring to the medical profession, as a profession, a group of statistics proving that about one in every ten persons suffering from systemic infections will show the portal of infection in the mouth. I did not say a word about pyorrhea or any other specific kind of mouth infection. I wanted to make evident that the mouth is a great portal, perhaps three or four times as great in importance as any other part of the body, and I wished to bring that up in such a way that my medical friends would believe it and give it the credit it should receive.

As to the question of the treatment of pyorrhea or any other type of mouth infection, I have nothing to offer in this paper, but I do wish to thank the men who have apprehended my idea and discussed that. I do not believe that the part of the discussion relating to methods or special diseases, pyorrhea, abscess or any thing of that kind, really belongs in a discussion of this paper. Medical men have come to think, and justly so, that dentists are greatly at fault, and have not sufficient scientific training, as was stated by Dr. Brophy and Dr. Moorehead.

If the medical profession realizes that dentists can do better work in this direction, they will unite in demanding of the dental profession that they must do it by setting an example in the way of extracting diseased teeth and condemning their confrères who attempt to do conservative work and at the same time foster infection. If this results, then my paper will have accomplished something worth while.

Suicide in Prussia from 1907 to 1911.—According to the National Statistical Bureau of Prussia there were 8,422 suicides in 1911 (6,394 males and 2,028 females) and in the previous year 8,179 (6,164 males and 2,015 females), an excess in the last reported year of 243. Probably this increase is due to the great heat of 1911, as experience shows that hot summers favor suicide. For the period from 1907 to 1911 the number of suicides per hundred thousand living varied between twenty and twenty-two annually. Among 1,000 suicides there were each year three to four times as many men as women. The tendency to self-destruction is of variable geographic distribution, depending much on race and religion. The frequency of suicide varies greatly also according to age, sex, family condition, profession and social position. It has been shown that the tendency grows with increasing age. The first decade may in general be regarded as immune, yet 1911 showed two suicides in children under 10 years.

INJURIES PRODUCED BY STARCH *

I. A. ABT, M.D.

CHICAGO

The *Mehlnährschaden* of the Germans, or the "starch injuries," have been extensively discussed in the German literature, especially in the writings of Czerny and Keller, and the Breslau school, and elaborated by the studies of Risel and Rietschel. To the genius of Czerny and Keller we are indebted for the conceptions of injuries to the organism produced by fat and starch and overfeeding with milk. These studies gave a great impetus to investigations of injurious effects produced by the component parts of milk. Thus, the ill-effects from excessive feeding of sugar, salts, starches, proteins and fats have been extensively studied.

In this brief clinical report I desire to review the work of the German authors on the starch injuries and to recite personal experiences. I feel it necessary to acknowledge that no original contribution is being offered, and feel that sufficient excuse for the publication of this report lies in the fact that few, if any, cases have been reported in the English literature.

This condition known to the Germans as *Mehlnährschaden*, seems to be little known in this country. Czerny and Kellar point out that starch in proper dosage is not injurious to the infant's organism. It has been suggested that nitrogen is better retained if small quantities of starch are added to the food. If it be given in excessive quantities for an extended period of time, particularly if it be used without the addition of milk, it may lead to disastrous results.

The condition arises in young infants who are fed starch preparations without the addition of milk. More frequently it is seen in infants who have suffered from a gastro-intestinal disturbance and for whom the physician has ordered a starch water, either barley or rice or oatmeal, and when this has been continued without the addition of milk, usually without the knowledge of the physician, for a long period. The pathologic condition which results from overfeeding of starch is due probably to an actual food deprivation measured in calories. The starvation is particularly due to the insufficiency of protein, fat and salts in the diet. The salts contained in the starch food as well as the starch itself, tend at times to combine with water in the tissues, leading to water retention. This causes the infant to appear plump, though pasty and pale. In the meantime, the normal production of antibodies in the organism is diminished and the resistance of the infant against infection is lowered, and secondary infections are likely to occur. Dyspeptic conditions with diarrhea and loss in weight result. If the condition of inanition continues for some time, fermentation and inflammation and loss of function of the alimentary tract are inevitable. This latter condition will explain the atrophic type of starch injuries to be referred to again.

The disease presents itself in three main types. Very frequently the little patients appear plump and are thought to be unusually well developed.

1. In cases in which there is a deficiency of salt without retention of water, complicated by diarrhea, the atrophic type presents. The muscles are hypertonic, the tissues dry, the skin and mucous surfaces are pale and the abdomen is distended.

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

2. The hydremic type occurs most frequently in cases in which salt is added to the starch preparations, or in which a small quantity of milk is used in the food.

These children remain stationary or increase in weight; sometimes the increase is enormous. If considerable milk is added to the diet at this point, the infants lose rapidly in weight. If the starch diet is resumed an increase in weight occurs. Gradually they present an edematous, pasty appearance, due in part to retention of water, and in part to accumulation of subcutaneous fat. The musculature is doughy on palpation; the abdominal wall and lower limbs become edematous, not due to nephritis but to a condition of simple hydremia. Owing to the diminution of the natural immunity the infant is predisposed to infections, such as bronchopneumonia, pharyngitis, otitis, abscesses and phlegmons. Czerny mentions that xerosis of the conjunctiva and cornea with sequelae are not infrequent and the condition usually indicates a fatal termination. He notes that ophthalmologists recognize the fact that infants with this eye disease seldom survive.

3. The hypertonic form is the most infrequent type. The muscles become rigidly contracted and are stiff and board-like. On account of this condition the spine is like a rigid tube, the occiput is bent backward and is bored deeply into the pillow, the arms and legs are adducted, the forearms are flexed at the elbow and the joints offer resistance to passive motion. In the severe types rigidity is so marked that the patient appears like one in catalepsy. Galvanic excitability with pronounced symptoms of tetany may be elicited. The bowel movements are usually yellowish-brown and formed, and frequently show starch with the iodin test. In the severer cases in which fermentation has occurred the stools may become thin with a penetrating sour odor.

PROGNOSIS AND TREATMENT

The dangers resulting from starch injury are most frequent in young infants. Starch can be digested by young babies, but only in small quantity. The mortality in these cases is high. The greatest danger exists on account of the loss of the natural immunity and lowered resistance, rendering infections more possible. The atrophic form seems most amenable to treatment and offers the best prognosis.

The treatment consists in the administration of milk containing a moderate quantity of fat. Carbohydrate food, such as buttermilk mixtures, malt soup and cereal decoctions should be avoided. Best of all is breast-milk. Even with the use of breast-milk one should consider the damaged tolerance of the organism and small quantities frequently repeated should be administered; first 2 ounces, 6 ounces, 10 ounces per day increasing gradually. Even with the use of breast-milk the cure will not be rapid. There may at first be loss of weight. The period of repair may be protracted, the damaged normal immunity may be slow to return and the use of the breast-milk should be persisted in for a considerable period, at least until the patient shows increase in weight. If breast-milk is not available, it has been suggested to use small quantities of undiluted cow's milk, 1 to 2 ounces per day, gradually increasing to 3 ounces and eventually to 6 ounces; finally by gradual increase to 10 or 12 ounces. The deficient quantity of water in the food may be counterbalanced by giving tea or water sweetened with saccharin. Or the milk may be used diluted with water, small quantities being frequently repeated. In some cases top-milk mixtures might be indicated, though the infant's tolerance for fat should not be exceeded.

Case 1.—A. C., aged 10 months, admitted into my service in the children's ward of the Michael Reese Hospital, July 27, 1912. The baby was one of twins. She was breast-fed for the first month; then she was put on milk and Mellin's food until 4 months old, when she began to vomit her feedings. The mother was advised to try strained oatmeal gruels without milk. She instituted this plan of feeding until the present time. During the past week the patient has had diarrhea; first three or four yellow slimy stools and after the administration of calomel numerous green stools. She has not vomited, is very restless, cries a great deal and sleeps poorly. There is no history of previous illness.

Patient has six brothers and sisters, all living and well. When she was admitted into the hospital it was noticed that she appeared pasty, somewhat swollen. Her face was puffed and on palpation the surface of her body gave a doughy sensation. The eyes showed cloudiness of both corneae. On the left eye over the conjunctiva a large vesicle occurred. In the right eye several small vesicles were present. Marked photophobia, increased lacrimation and circumcorneal injection was noted. There was no purulent discharge. The bony thorax showed the presence of a well-marked rosary and a flaring of the costal arches. The abdomen was somewhat depressed. There appeared to be a loss of subcutaneous adipose tissue and the skin was harsh and dry. The abdomen was covered with numerous macular discolored areas varying in size from a pin point to a small bean, many tending to coalesce, showing a distinct bluish color—a diffuse purpura hemorrhagica. The photophobia tended to increase, and the cloudiness of the cornea, particularly of the right eye, was more distinct. There was marked keratitis in both eyes. During the first few days the infant's temperature was rather high, reaching 104 F. The leukocyte count was 33,500, with 82 per cent. neutrophils, six small mononuclears, eight large mononuclears, four eosinophils, and hemoglobin 62. On admission the child was greatly prostrated, rapid pulse and slightly accelerated respiration.

The infant at first was given a tea diet for twelve hours; then was placed on dram doses of breast-milk every hour and when an improvement in the appearance of the child was noted 6 drams of breast-milk were given every two hours. On the fifth day after admission the child was given 6 drams of skim-milk and 6 drams of breast-milk with 2 grains of citrate of soda, and 4 ounces of water every three hours. The baby lost 4 ounces in weight during the first several days of this treatment. On the fourteenth day after admission to the hospital the breast-milk and the skim-milk were increased to 2 ounces of each and 2 per cent. of *Nährzucker* was added to the diet. On the thirty-third day after admission she had shown considerable improvement and meat broths with vegetables were added to the diet. At the same time mashed carrots and baked potato were given without bad results.

An abscess appeared on the back after the child had been in the hospital for six weeks, which required incision and drainage. Later on a somewhat generalized furunculosis appeared, which seemed to improve with treatment by staphylococcus vaccine. One month after admission the patient showed an abundance of pus in the urine with elevation of temperature and considerable constitutional disturbance. The corneal opacity had entirely disappeared. The baby was playful, happy and active. She enjoyed her food, was gaining in weight, the purpuric spots on the abdomen slowly though constantly showed marked tendency to fade.

The child was discharged on Dec. 23, 1912, after fifty-nine days of treatment, showing a marked improvement.

Case 2.—This infant, also one of twins, from the service of Dr. Julius Hess, weighed 7 pounds at birth. It was three months old on admission to the hospital. The first baby was breast-fed exclusively, while the second of the twins, which was the stronger at birth was breast-fed for the first two weeks, then given half milk and half oatmeal water for three weeks. Milk-sugar was added at the end of this time and the baby showed symptoms of indigestion and diarrhea. As it seemed quite impossible for the baby to take milk it was put back on the oatmeal water and this was continued for several weeks. After some time the bowel movements became thin and sour and frequent and she vomited very much. Emaciation was progressive and the baby weighed 6 pounds 2 ounces when she was three months old. The skin was dry and inelastic; the normal turgor was absent; the baby was atrophic and had a senile appearance. The breathing was rapid and shallow and the condition seemed desperate. The infant was placed on small doses of breast-milk and three weeks afterward was beginning to gain in weight and from this time on she made a rapid and complete recovery.

104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. F. P. Gengenbach, Denver: I wish to cite a case that came to my attention about two years ago. The patient was a baby about 7 months old with acute gastro-intestinal disturbance. The doctor took the baby off its food and put it on barley-water. Unfortunately for the baby, the doctor became ill and forgot about it, and the mother left the baby on barley-water—nothing else—for two weeks. I found the baby with all the appearances of a child with marked nephritis. Its face was puffed up and the whole body edematous. The case might have been called one of acute *Mehlnährschadung*. Things were not so desperate as they looked, however. I took the baby off the barley-water, gave it a weak milk modification and it promptly recovered.

Dr. F. W. Schlutz, Minneapolis: A case of this kind has recently come under my care. The most pronounced symptom was the hypertonic contraction of the muscles of the extremities. Both hands were clenched and the nails buried deeply in the palms. This condition had existed for weeks. The child, for several months, had received only oatmeal or barley-water seasoned with salt. The extremities presented marked edema. Another feature in this case was the condition of the sensorium. The child gave the impression of idiocy. The sensorium was always clouded. The mother of the child had a 4-month-old baby which she was nursing. This fact made possible the therapy carried out in this case. The nursing baby was put on mixed feeding—part breast and part buttermilk. The sick child was given breast-milk, expressed from the mother, with supplementary feeding of buttermilk. The physical condition of the child has improved markedly. The mental condition and the hypertonicity remain unchanged. It will be interesting to see whether these conditions will improve or whether they are permanent changes.

Dr. Julius Hess, Chicago: I believe that there is an important lesson to be learned from these cases. Either we do not see many of them, or we lay the death to something else. I believe the latter is true. It is a common practice to tell the mother, if the baby has diarrhea, to put it on barley-water or rice-water, but I believe we are a little indifferent about warning as to the dangers of this, especially of its long continued and repeated use as an exclusive diet. Most mothers keep the baby on the cereal waters but a short time, but as soon as the baby has a loose bowel they repeat it. With each withdrawal of food and placing on cereal water exclusively, the convalescence is slower. I believe the lowered resistance, especially to general infection, is marked. It is our duty to warn against the complete withdrawal of food over any continued period.

Dr. L. Duncan Bulkley, New York: I do not know how many of you remember a paper I read many years ago before this section about a certain preparation for infant feeding which I called wheat jelly. I have used this for over twenty years in hundreds of cases. My opinion about all this trouble is that starch is generally not cooked enough. I use crushed wheat—the whole wheat. My directions are to take a teacupful of whole wheat, put it in cold water in the afternoon at 3 o'clock and boil for three hours. Then set it aside in a china vessel. Those of you who have eaten wheat which has been cooked over night know that it is sweet; a certain amount of diastatic fermentation has taken place. In the morning more water is stirred into it to make it quite soft, and it is boiled three hours more. It is then rubbed through a fine sieve with the bowl of a spoon. By scraping off what is under the sieve we have a jelly-like mass representing all the wheat, except the external silex coat.

Two or three teaspoonfuls of this wheat are put into the milk at each feeding. It passes readily through the nipple. In this manner we have extracted all the components from the wheat, including the nitrogen from the germ and the phosphates from the outer coating; we have then an entire wheat product, which nature intended we should take. For twenty years and more I have never used barley or any of the prepared foods, as I find that the wheat jelly is a perfect nutrient. I think that this is worth trying for the summer diarrheas.

THE TREATMENT OF HEMORRHAGIC DISORDERS *

THOMAS B. COOLEY, M.D.
DETROIT

Within the past few years, chiefly because of better knowledge of the physiology of the blood, much new light has been thrown on a group of diseases which have always aroused great interest, but whose pathology has been obscure, and whose treatment has been exceedingly unsatisfactory.

Of these diseases, the most important clinical feature of which is a tendency to uncontrollable hemorrhage, the most important to pediatrics are the so-called melena neonatorum, the purpuras and hemophilia; the last being, of course, equally evident in later life. Etiologically, we are still in the dark regarding all of them. Hemophilia shows two very important differences from the others. It is a permanent, not a temporary condition, and it is not characterized by spontaneous bleeding or oozing from the vessels, but merely by failure of the ordinary method by which a break in the vessel wall is sealed after it occurs. In purpura, in a number of the various conditions which are grouped under the vague term "melena," and in the hemorrhage of septicemia, which seem to be closely related, there is, on the other hand, a very pronounced tendency to spontaneous leakage from the vessels, as well as the failure of the blood-clot to form sufficiently to put a stop to this. In these diseases, moreover, if the outcome is not fatal, the hemorrhagic tendency usually entirely disappears, and the patients become wholly normal in this respect. These differences seem to me to be highly important in formulating anything like a satisfactory theory of the probable causes of the conditions and the rationale of treatment. It is wholly impossible, within the limits of a short paper, to analyze the voluminous literature of the past few years regarding the pathogenesis of hemorrhagic diseases. I shall try merely to present briefly the points important to my argument.

It has long been noted that in all these conditions the blood was often slow to clot, the clot when formed frequently was abnormally soft, and the failure of the clot properly to seal the vessel was generally believed to be the reason for the continuance of the hemorrhage. As the physiology of clot formation became better understood, a lack in the blood of some one of the essential elements was assumed to be the cause of this failure. Calcium, fibrinogen and prothrombin all being essential to clotting, a deficiency of any one of them might delay clot formation, while an excess of antithrombin would prevent thrombin formation even in the presence of sufficient prothrombin. The existence of thrombokinase is still in doubt, but there are those who believe that its absence will account for some cases. Definite proof of a deficiency of any of these elements was long lacking. Duke[1] in 1910 thought that he had shown a relation between a low platelet count and purpura and has emphasized this idea in further publications. The blood low in platelets is said to clot in normal time, but the clot does not contract sufficiently to seal the vessel. Schloss[2] found thrombin lacking in some cases of melena. Whipple[3] has found antithrombin present in septicemia, prothrombin absent melena, and fibrinogen deficient in hepatic cirrhosis. He suggests the possibility of classifying the hemorrhagic diseases according to which element is lacking. Calcium has not, I believe, been proved to be absent in any case of hemorrhage, though it is probable that the abnormal coagulability in jaundice may be due to relative lime deficiency. Sahli's[4] studies of hemophilic blood were interpreted as showing lack of thrombokinase, while Addis[5] thinks that he has shown defective activation of prothrombin.

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

It seems proper to believe, in view of this work, that temporary or permanent absence of some one of the clot elements is the usual cause of the persistence of hemorrhage in these conditions, and that different elements fail in different conditions, if not in different cases of the same condition. Whether or not we are also to believe with Whipple and others, that this is also the cause of the inception of hemorrhage, abandoning the older idea of some unexplained fault of the vessel walls, is another question. As Schloss has said, it seems impossible that a lack of any one of the clot elements should in itself account for a leakage of blood through a normal vessel wall; moreover, if this were the case, spontaneous hemorrhages should be common in hemophilia, where the blood abnormality is permanent. In spite of the lack of any definite proof, it seems to me that we must assume a diseased condition of the vessel wall as well as of the blood, except perhaps in those cases of the melena group where ulcers, thrombi or extreme congestion are present.

In accord with this idea of the failure of clotting as the cause of the persistence of the hemorrhage, treatment intended to supply the lacking element has very rapidly come into favor. The only inorganic blood-clotting element, lime, has been tried, but with little success. The other elements being all peculiar to the blood, blood preparations in one form or another are now being widely used in all of these diseases, and, if one were to judge merely by the reported cases, with almost invariable success. Normal animal serum was first used, chiefly that of the horse, sometimes that of other animals; the serums of the dog, bullock and goat being least in favor, because of toxic properties. Antitoxin has a number of times served in a pinch.

Lately, apparently owing chiefly to Welch's[6] very favorable reports, though he was not the first to suggest it, human serum has been used and highly praised by various American writers. Schloss injected whole human blood subcutaneously, believing it possibly advantageous to have all the blood constituents present. Very recently, precipitated, dried and powdered horse-serum, said to contain all the essentials to clot formation in at least normal concentration, and less subject to deterioration than in the liquid form, is being urged. Clowes[7] believes this to be more efficacious than fresh serum. Transfusion of whole blood has so far been reserved almost exclusively for use as a last resort in really exsanguinated patients, because, no doubt, of the difficulty attending ordinary methods of performing it.

Two things are very striking about the reports of successful treatment with blood or serum. One is the promptness with which the hemorrhage ceases, and the other, the relatively small amount used. Schloss, for instance, got prompt recovery after a single injection of 5 c.c. of whole blood, and most of the recoveries have been after injections of not more than 20 or 30 c.c. in all. Clowes reports the necessity of large amounts in one case of melena.

It is wholly impossible, at present, to gain any really accurate idea of the value of serum or blood injections or of the relative value of the different preparations. The tendency to report success rather than failure is well known, and many of the reports to be found are of single instances of success with any one of the preparations.

The reports of series of cases deal chiefly with melena. Swift and Green,[8] using rabbit-serum, had rather less success, apparently, than in the cases which were treated with gelatin and which they report in the same article. Schloss had much better results with human serum and whole blood, the whole blood being apparently more effective and in smaller quantities. Welch had remarkable results with human serum. Clowes' article deals with a series of very diverse conditions treated with solutions of serum powder. He seems to assume that there was lack of thrombin in all of these cases, though in some of them there seems to be no reason, except the persistence of hemorrhage, to suppose that a deficiency existed of any of the clot elements. In gastric ulcer and pulmonary tuberculosis, for instance, there is no need to assume failure of clotting in order to account for severe hemorrhage, though the cessation after serum injection might be held to prove that the coagulating mechanism was at fault.

I have found no reports of series of cases of hemophilia, but the isolated cases and small groups show almost invariable success with injections of any form of serum, or local applications of fresh or powdered serum to the bleeding spot. Prophylactic injections before operation are reported as successful by Clowes.

On the whole, the evidence from the literature seems distinctly in favor of human over animal serum, except for Clowes' series. This serum powder has only lately been available for extended trial, so that reports from other investigators are not yet at hand. My own experience with it in melena has been by no means so favorable as Clowes'. I have used it in two cases apparently with no effect whatever. In the first, which I have reported, the patient was saved by transfusion after serum powder and fresh human serum had apparently failed to check the hemorrhage. Clowes' criticism (private communication), in this case that I did not use enough serum, may be justified. The second case was seen in the evening, shortly after the onset of hemorrhage, which was not at that time profuse. The baby received during the night 20 c.c. of serum powder solution and 20 c.c. of the father's serum, and died within an hour after the last injection of human serum, with symptoms of intrathoracic hemorrhage. Clowes seems not to believe that there is danger of anaphylaxis from the use of horse-serum. While I admit that this danger is slight, it seems to me sufficient to make human serum preferable, inasmuch as it seems to be at least fully as efficient.

---

[1] Duke, W. W.: The Relation of Blood-Platelets to Hemorrhagic Disease, The Journal A. M. A., Oct. 1, 1910, p. 1185; Jour. Exper. Med., 1911, xiv, 265; The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.

[2] Schloss, Oscar M., and Commiskey, Leo J. J.: Spontaneous Hemorrhage in the New-Born, Am. Jour. Dis. Child., April, 1911, p. 276.

[3] Whipple, G. H.: Hemorrhagic Diseases—Septicemia, Melena Neonatorum and Hepatic Cirrhosis, Arch. Int. Med., March, 1912, p. 365.

[4] Sahli: Ztschr. f. klin. Med., 1905, lvi, 264; Deutsch. Arch. f. klin. Med., 1910, xcix, 518.

[5] Addis: Brit. Med. Jour., 1910, ii, 412.

[6] Welch: Am. Jour. Med. Sc., 1910, cxxxix, 800; Am. Jour. Obst., 1912, lxv, 597.

[7] Clowes: New York Med. Jour., Jan. 4, 1913.

[8] Swift and Green: Boston Med. and Surg. Jour., 1911, clxiv, 454.

There are at hand very few statistics containing the results of transfusion. Considering the very grave condition in almost every case in which it has been resorted to, it seems to me to have been more efficacious than any of the other methods. Several patients have been cured by it after serum injections had failed to check the hemorrhage.

Curiously little has been said by any of the writers concerning the probable action of serum or blood in checking hemorrhage. It seems to be taken as a matter of course that the blood preparation acts by supplying the deficient clot-element, whatever it may be. The correctness of this assumption seems to me very doubtful. None of the clot elements are supposed to have a ferment action except the purely hypothetical thrombokinase. Definite quantities of each of the others go into the reaction, and it is difficult to suppose that the injection of relatively small amounts of serum or blood can possibly make up for any serious deficiency of any of them. It seems to me impossible that Duke can be right in supposing that the enormous increase in the platelet count reported by him after transfusion was the result simply of the addition of the platelets of the transfused blood. The amount of blood transferred by ordinary transfusion, which cannot be definitely measured, is certainly too small for this to be true. Admitting the existence and importance of thrombokinase, and assuming it to be present in any quantity in the injected serum, it might explain the cessation of hemorrhage in cases where thrombin formation is insufficient.

Another thing not satisfactorily explained by the idea of injecting a lacking clot element is that the patient is so often definitely cured. Not only is the existing hemorrhage stopped, but the tendency to bleeding disappears, and the blood soon shows normal coagulability. It is, I think, more reasonable to suppose that this effect is due to some stimulant action of the normal serum or blood on the blood-forming tissues or in the vessels. Esch has suggested that the bone-marrow is stimulated to the formation of thrombokinase. As we have no reports of the successful use of serum in cases in which any other element than thrombin was definitely proved to be lacking, this explanation might be correct. In the absence of more exact information, I prefer to suggest that the blood-forming tissues react to the stimulus of normal serum (or blood), by the formation of normal blood, and that possibly there is a reaction between normal blood and the vessel-walls, lacking in certain abnormal blood-states, which explains the complete cessation of hemorrhage. This hypothesis is vague, but something of the kind seems necessary to fit all the facts.

Such an assumption would give a reason for the apparent relative values of treatment by animal serum, human serum, whole human blood by subcutaneous injection, and whole blood by transfusion, which would not at all apply if the end to be obtained was merely to supply a lacking clot-element. Human tissues would naturally react better to human than to animal serum, to whole blood than to serum, and probably to whole blood put directly into a vessel than to the same blood injected subcutaneously, where it must partially disintegrate. I make this suggestion for what it is worth, admitting it to be pure theory, and incapable of demonstration with our present knowledge.

All things considered, whatever theory one may adopt, it would certainly seem, so long as we cannot determine at the bedside just what blood element may be needed, that there should be a wider use of direct transfusion in serious hemorrhage, because of its supplying for immediate availability all of the factors likely to be concerned; and that the transfusion should be early, rather than as a last resort after everything else has failed. The technical skill required has heretofore stood in the way of this, but recently there has been more than one suggestion of simple methods for accomplishing the operation. Crile's method is an improvement over direct suture or the older cannula methods, but is not readily applicable to the small veins of babies. Vaughan and myself[9] have described a method used by us which required no special apparatus, and which we have found to be really as easy as any intravenous injection. It consists simply in drawing blood from the donor's vein into a glass syringe and injecting it rapidly into the vein of the recipient. A small amount of physiologic salt-solution is drawn into the syringe before and after the blood, to prevent clots forming in the needle or the vein. The only requisite for success, apparently, is to have everything so prepared that one may work fast and keep within the time-limit of coagulation. We have ourselves practiced the method once since our report, in a case of septicemia, and Rowland (private report), used it without difficulty and with remarkable results in a case of severe melena with bleeding from the cord, mouth, and numerous areas in the subcutaneous tissues. Pope has recently described a method used by him on laboratory animals which he says is very easy. Freund, working with the anemias, has recently developed an improvement (unpublished), on our syringe method, by which he was able easily to transfuse 140 c.c. in a few minutes. The apparatus consists of a syringe connected by a Y and short rubber tubes, with two needles. At the branching of the Y is a two-way valve, and connected with the proximal branch of the Y is a tube, with stopcock, for salt solution. The needles are inserted into the veins of the donor and recipient and connected with the syringe. As the blood is drawn from the donor's veins about 10 per cent. of salt solution is allowed to mix with it. Dilution in this way with about 10 per cent. of saline solution prolongs the coagulative time considerably. The valve is turned and the diluted blood is injected into the patient. This procedure may be repeated, 20 c.c. at a time, almost indefinitely, with no apparent danger. Either of these syringe methods is as simple, and probably as safe as ordinary intravenous injection, and they have the additional advantage over ordinary transfusion methods of being quicker, as the positive suction and pressure of the syringe make it possible to transfer the blood much more rapidly. Moreover, it is possible, working by either of these methods, to interrupt the procedure at any time, and renew it at pleasure. With former methods, the difficulty of the operation and the sacrifice of the vessels which is involved, required one, in order to be sure of going far enough, to carry it often to very tedious lengths. The amount really necessary to be injected sometimes proves to be very small. Rowland, for instance, could see almost immediate results from 8 c.c., and was not obliged to use more, but with any other method he would have felt compelled to go a good deal further before breaking the connection between the vessels.

---

[9] Cooley, Thomas B., and Vaughan, Walter: A Simple Method of Blood-Transfusion, THE JOURNAL A. M. A., Feb. 8, 1913, p. 435.

It seems probable, from a perusal of current medical literature, that human serum or blood is to be used, or at least extensively experimented with, in the treatment of a variety of conditions aside from those I have spoken of. Already they are being tried in the anemias, and in pediatrics there are favorable reports of human serum in grave nutritional disturbances. In all of these, it is possible that human blood injected intravenously might be of more use than serum. The purpose of this paper is to urge that simplified transfusion be given a more extended trial, especially in melena, which is one of the most serious conditions with which we have to deal; and that it be used as a first rather than a last resort.

CONCLUSIONS

1. Blood therapy of some kind is the best remedy we have for hemorrhagic conditions.
2. In hemophilia blood-serum seems to have a specific action so far as checking the hemorrhage is concerned. It may be used as a prophylactic measure, as well as to stop existing hemorrhage. Fresh human serum is probably to be preferred.
3. In purpura, melena, and other toxic conditions, in which various blood elements have been shown to be lacking, none of the serums are always effective, and there are good theoretical and clinical reasons for believing that whole blood should be preferred, not only to stop hemorrhage, but for a possible curative effect on the underlying disease condition.
4. Transfusion is not really a difficult procedure. It is deserving of extended trial—not as a last resort, but as the first treatment in any of the hemorrhagic diseases of toxic nature.

Note.—Since this paper was read, Freund has published a description of this method (*Jour. Mich. State Med. Soc.*, September, 1913, xii, 459).

Fine Arts Building.

ABSTRACT OF DISCUSSION

Dr. V. D. Lespinasse, Chicago: I have treated ten cases of hemorrhagic disease of the new-born by direct transfusion of blood. Some of these cases had been treated previously with various serums. Among the ten cases there were but two deaths; both patients were weak syphilitic babies. The cases were of all grades of severity from a comparatively mild to a very severe form. The most desperate case was that of a child born on Thursday at midnight. It started to bleed from the bowels on Saturday at 6 p. m. While being taken to the hospital the child vomited blood. It was transfused at 9 p. m., three hours after the discovery of the hemorrhage. While I was dissecting out the vein, the pulse stopped and the heart was neither audible nor palpable. Fifteen seconds after the blood began to flow into the internal jugular vein, the heart began to beat and the child recovered. The child was in the hospital one week and gained an ounce a day in weight. It is now alive and well. In transfusing these cases, I do not know how much blood is put into the vascular system. I transfuse until the children are red as in scarlet fever. When the operation is begun the babies are pale. If we allow the blood to flow in too rapidly the baby becomes bluish. If this occurs, the flow of blood should be stopped temporarily. When the baby's skin is a decided red, the anastomosis between the two vessels is cut and the vessels ligated. The effect on the babies is immediate and prompt. The hemorrhage stops at once and does not recur. I should like to emphasize the point that Dr. Cooley made, that transfusion is the best treatment for hemorrhagic disease of the new-born, and should be used early. I should also like to emphasize the fact that it is never too late to save a baby by transfusion, so long as there is a flutter in the heart; even if the heart has stopped for a few minutes, there is a chance to save the baby by transfusion properly done.

Dr. H. M. McClanahan, Omaha: The remarks that I have to make are in the interest of the doctor in the small town who does not have modern facilities. I am glad that Dr. Cooley made the distinction between hemorrhage in the new-born and hemophilia. By hemorrhage in the new-born I believe he means spontaneous, not traumatic, hemorrhage.

Within the past year I have had five cases of hemorrhage in the new-born. In these cases I have recommended the use of antidiphtheritic serum, using a serum with a low number of antibodies. I have personal knowledge of three cases in which the hemorrhage was evidently sufficient to cause death, although I do not believe that these infants die from actual loss of blood, but from that condition which causes the loss of blood, and I believe that antidiphtheritic serum is an excellent remedy. It is not so good as transfusion, but in the small towns it is a good substitute.

Dr. Julius Hess, Chicago: The thing which has interested me most is the evolution of the medication in the hemorrhagic conditions. At first most of us used diphtheria serum without further thought. Following that a normal horse-serum was put on the market and we used that. Then came anaphylaxis. Then we used rabbit's blood, and eventually adopted the simple method of drawing a small quantity of a 10 per cent. sodium citrate solution into the barrel of the syringe, taking from 10 to 15 c.c. of blood from the vein of the mother and injecting the mixture directly into the vein of the child. Theoretically there are some reasons why we should not use sodium citrate. The results with this are as good as with horse-serum, and its use has obviated the dangers of anaphylaxis.

Dr. Ogden M. Edwards, Jr., Pittsburgh, Pa.: This is a serious condition which occurs in children at the beginning of their lives. The treatment at present is not satisfactory, as Dr. Cooley says. The use of serum and of some of the preparations of blood is the best treatment we have to-day. We shall never get the proper treatment for all of these cases until the etiology of these conditions has been discovered. We probably have a right to believe that these are different conditions, having one thing in common, spontaneous hemorrhages, and that there are different causes for the hemorrhages. If we could find these different causes we should get at the treatment better. Some hemorrhages may be due to infection, as has been suggested, but whether or not infection is the etiologic factor we are unable to say. Some of them are associated with syphilis, but we are not able to say whether or not that is the cause. Certainly we know that some of these children are not syphilitic.

The suggestion by Evarts Graham is interesting; that lack of proper oxidation existing in the mother before the child is born may play a part in the production of these conditions. He has brought about a change in animals experimentally by producing a lack of oxidation in the mother.

The etiology of these conditions is still unknown, however, and the treatment, therefore, will never be on satisfactory grounds until these hemorrhages have been differentiated according to their etiology. Some of the patients recover with serum and blood preparations, and some do not.

Dr. H. Lowenburg, Philadelphia: I should like to report a case of hemophilia in a 2-year-old child. His mother's brother died of uncontrollable hemorrhage following a slight injury, and his own brother succumbed to this same condition. This boy bit his tongue and had been bleeding for two days when I saw him. He was very anemic and restless. He responded promptly to two injections of horse-serum given at 7 p. m. and the following day at about 10 a. m. A point of interest that this particular case illustrates is that probably a permanent cure is not produced, because about five or six months later this boy suffered a slight trauma of the hip, which was followed by extensive ecchymosis. There was no break of the skin, and the ecchymosis was five or six weeks in disappearing.

Dr. C. Brooks, Pittsburgh, Pa.: I have for some time been interested in the technic of transfusion. Almost two years ago I suggested the use of a syringe to transfuse blood in infants. Since I located in Pittsburgh Dr. Edwards has spoken to me about some cases in which transfusion by the union of blood-vessels failed. I suggested that we try to work out some simple methods of transfusion. I am gratified to learn from the discussion here to-day that a good many simple methods have already been used. For instance, Dr. Cooley's method, in which he used a syringe with an ordinary needle and a method of drawing the blood in at one side, and throwing it out from the other with a "Y" shaped connection, is doubtless a good one.

Dr. Edwards and I have a method which we think more certain of success and more easy of use than any method yet discovered.

I think that all physiologists will agree that it is best to use for transfusion the normal blood. That is the least dangerous. Defibrinated or salted blood are departures from the normal. From theoretic considerations, however, the least objectionable salt to use for that purpose would be sodium oxalate. We have performed some experiments on animals, using this salt. It works very well. We draw into the syringe about 0.5 c.c. of a 1.0 per cent. solution of sodium oxalate and then draw the syringe full of blood. When this is done it will not clot. The needles which we have tried on animals are fashioned so that when once inserted they will not come out, neither will they cause laceration of the wall of the vessel.

I think that Dr. Cooley is right—we should not necessarily call in a surgeon to do transfusions. Those living in the country cannot always get a surgeon. They must go ahead and do the simplest transfusion possible. If they employ this syringe method, they will know how much blood they are transfusing. Some surgeons tell me that when they use the more complex methods they are not certain how much they transfuse, or indeed, whether or not they transfuse any blood at all. Apparently the right tendency is toward a simple method and toward the use of a syringe with the trocar cannula needle.

Dr. T. B. Cooley, Detroit: In regard to the blood necessary for transfusion, Dr. Lespinasse has said that in direct anastomosis methods it is advisable to transfuse babies until they are red. In the case reported, the child was practically dead when we started. We used altogether 20 c.c. of blood, with salt solution between the blood injections. We did not carry transfusion anywhere near the point of redness of the child. The child was still pale, but we could see a definite improvement; the pulse was becoming stronger and we felt safe in waiting; we knew that we could transfuse more blood at any time. The child did well. As regards transfusing blood slowly, we used injections of salt solution between the injections of blood. Maybe, if we had put in one blood injection after another, we should have gone too fast.

The point that I was especially anxious to make was that the doctor in the small town can do transfusion with one of these simple methods. It is a thing anybody can do who can dissect out a blood-vessel.

Nobody answered Dr. Hess' question about anaphylaxis. I have been unable to find any reports about anaphylaxis from the use of antitoxin in this way. Those of us who use diphtheria antitoxin extensively know that the proportion of anaphylaxis is slight. When horse-serum has been used in a large number of hemorrhagic cases, we shall probably hear of some cases of anaphylaxis.

There is one thing quite evident in regard to the etiology of nearly all of these conditions—they are the result of toxemia of some kind. Toxemia resulting from lack of oxygen is certainly a possible cause.

I was careful to except hemophilia from the conditions in which one gets a permanent cure.

I do not think that the addition of oxalate to the blood is necessary or desirable to prevent the blood from coagulating. If one can delay coagulation of the blood a little time, that is all that is necessary. If we are sure of our technic we can do this without any other assistance.

Dr. Brooks' needle is much like one which Dr. Vaughan and I made, although we decided that it was not absolutely necessary to have a special needle.

THE NATURE, DIAGNOSIS, PROGNOSIS AND TREATMENT OF GENERAL PARESIS *

CHARLES R. BALL, M.D.
ST. PAUL, MINN.

The honor of having first discovered a relationship between paresis and syphilis belongs to Esmarch and Jessen. These observers in 1857 reported three cases of paresis, the cause of which they attributed to syphilis. Thus a controversy of this subject began which has lasted for more than half a century. The consensus of medical opinion has held that in the great majority of cases syphilis is the chief etiologic factor which causes paresis. Of the opponents of this doctrine Näcke was the most extreme. He considered a neuropathic inheritance as a most important cause and assigned to syphilis an equal importance among other etiologic factors, maintaining that it often furnished the last offense for the development of the disease. It was not until the discovery of the Wassermann reaction and its regular observance in both the blood and spinal fluid of paretics that the doctrine of no syphilis, no paresis, could be said to have found universal acceptance.

Until recently parasyphilis has been regarded as an effect of syphilis, the ashes of a fire which long ago has burnt itself out, the result on the nervous system of a toxin which might be compared to the action of the toxin of diphtheria in diphtheritic paralysis, when the exciting factor, in both instances, had passed away, but the harmful influence still acted in a progressive manner.

A number of reasons may be given why we have so persistently refused to accuse the spirochetes of occupying the chief rôle in the causation of the symptoms of paresis. The apparent absolute inefficiency of antispecific treatment, the fact that the pathology of paresis was said not to be the pathology of syphilis and the failure to discover the spirochetes in the tissues of the central nervous system are the chief reasons. Since the discovery of the Wassermann reaction, however, and its positive finding regularly in paresis, the suspicion has steadily grown that the *Spirochaeta pallida* is actively and directly concerned in paresis. Plaut calls attention to the fact that a paretic behaves with reference to the serum reaction similarly to a syphilitic in the active stages and not as a tertiary luetic without symptoms. This indicates, according to Plaut, a more active participation of the spirochetes in paresis than was formerly thought. He believes that there is a close relationship between the activity of the specific virus and the Wassermann reaction. Nonne says that occasionally the blood of a paretic may give a negative Wassermann and that rarely also all four actions may be negative in tabes. These results usually occur, however, in exceedingly long-standing and chronic cases after the active process and progression of symptoms have long since terminated. This observation of Nonne's would seem to support Plaut's contention.

The fact that active syphilitic processes in the nature of gummata and specific endarteritis are found both in paretics and in tabetics also argues for a close connection between the spirochetes and paresis. Recently E. Meyer[1] has reported a case of syphilitic meningomyelitis occurring in a paretic. The active syphilitic process in the cord was healed by antispecific treatment, as the post-mortem later demonstrated.

---

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Meyer, E.: Progressive Paralyse kombiniert mit Meningo-Myelitis marginalis, Arch. f. Psychiat. u. Nervenkrankh., L, No. 1, p. 245.

The pathology has been one of the strong arguments against regarding paresis as a late syphilis. On this question Spielmeyer[2] says that, although the pathology of paresis is a characteristic one and differs materially from the pathology of cerebral lues with which we are familiar, we cannot say that it is no longer a syphilitic process. He argues that as we are unable to say with certainty what pathologically belongs to syphilis, therefore we surely are not justified in saying that certain processes are non-specific in character. Primary parenchymatous degenerations can just as easily be caused by syphilis as specific cellular infiltrations. Nissl takes a somewhat similar position. Thus according to these observers we are not able to state positively that the pathology of paresis may not also be the pathology of syphilis.

The inefficiency of antispecific treatment has been another important reason why the diseased processes of paresis have been regarded as of a different nature from those of lues. The tendency to exclude syphilis when a disease failed to respond to antispecific therapy has been too general. We have known for some time that certain specific processes are often refractory to treatment. Nonne[3] says that the general medical opinion in regard to the success of antispecific therapy is too optimistic. Spielmeyer suggests as an explanation of the failure of antispecific therapy the impermeability of the meninges. A large number of experiments have been made and from these it has been demonstrated that mercury and iodin, under normal conditions, are unable to penetrate the meninges. The difficulty exists in paresis and tabes. This author says that perhaps the inadequateness of our present methods of treatment in not being able to pass through the meninges may be largely responsible for the failure of this treatment in paresis.

Recently Noguchi[4] has examined the brains of a large number of paretics. Out of 200 examined he has been able to find the spirochete in forty-eight, and in the spinal cord of one tabetic out of twelve examined. He found the spirochetes more numerous and more frequent in the brain cortex than in the white substance. They were distributed between the nerve-cells and the neurogliar tissue. In some instances the parasites were found in the nerve-cells. In those cells containing the spirochetes evidences of degeneration in the form of distortion and swelling, as well as the complete dissolution of both the nucleus and the cell-processes, were discovered. Noguchi, in connection with the report of his examination, says that the pathogenesis of paresis was never entirely free from objection. Since, however, the causal factor of syphilis has been found in the pathologic changes, one may well assume that these changes are directly due to the *pallida*. He characterizes the brain changes as a chronic parenchymatous encephalitis produced by the invading spirochetes. He suggests that the fact that treatment thus far has proved so futile may be explained by the circumstance that the parasites lie in the nervous parenchyma away from the blood-vessels and are inaccessible to the medication. Confirmation of Noguchi's discovery by other observers is all that is lacking in order to bring about a complete reconstruction of our former ideas concerning the nature of metasyphilis. This must all deeply affect the whole subject of paresis. It increases very much the importance of diagnosis and particularly of an early diagnosis. Kraepelin[5] says that it is often very difficult to determine the actual beginning of the affection. A number of years may intervene between the observance of such symptoms as transient attacks of double vision, dizziness, temporary aphasia and unconsciousness and the real development of the paresis. He reports two cases in which there was an interval of six years between the observance of such symptoms and the beginning of the paresis. I can recall one case which came under my observation with symptoms of dizziness, loss of the pupil light-reaction and occasional attacks of unconsciousness in a patient with a luetic history four or five years before sufficient mental change had occurred to make it necessary for the patient to give up his regular work. When should the diagnosis have been made in this case, at the time of the first attack of unconsciousness or four years later when the paresis was well advanced? It is interesting and, in the light of our recent knowledge, very important to know how far back we may date the real origin of the paresis with a history of such symptoms as those mentioned.

Another interesting and practical question is, if this case had been regarded as paresis when the first symptoms appeared, would active and persistent antispecific treatment, such, for instance, as the chronic intermittent, or the intensive along the lines proposed by Dreyfus and Gennerich, have exercised a restraining and beneficial influence on the later course? It must be acknowledged that the only difference between tabes and paresis exists in the location of the pathologic process. Because of the larger brain-area and, therefore, greater capacity for compensation, the prognosis for the brain-process ought to be better than for the one in the cord. In regard to the influence of antispecific treatment in tabes, Nonne says that for many years he has had a large number of cases of beginning tabes under observation in which the disease had apparently been brought to a standstill by means of regular courses of inunctions. Because of the peculiar anatomic structure of the cord, beginning lesions there would naturally cause much earlier significant symptoms than corresponding processes in the brain. On account of the so-called silent areas in the brain, extensive lesions may exist without manifesting any symptoms. Failure to recognize the nature of early symptoms before the diseased processes have become too extensive may be another explanation why antisyphilitic treatment has proved so ineffectual in paresis.

During the past two years it has been my practice to make a Wassermann examination of the blood in every one of my hospital patients. If the Wassermann was found to be positive and the patient exhibited any nervous symptoms, no matter how slight in character, I then made a lumbar puncture and tested the three reactions. With positive findings the interpretation of even slight psychic symptoms becomes easier. With the modern diagnostic methods a much earlier diagnosis of paresis becomes possible, and the importance of this, in the light of recent additions to our knowledge, is greatly increased.

---

[2] Spielmeyer: Die Behandlung der progressiven Paralyse, Arch. f. Psychiat., L, No. 1, p. 76.

[3] Nonne: Syphilis and the Nervous System, American edition.

[4] [illegible] Studien über den Nachweis der Spirochaete pallida [illegible] bei der progressiven Paralyse und bei Tabes dorsalis, München. med. Wchnschr., April 8, 1913, p. 737.

[5] Kraepelin: Psychiatrie: Die Dementia paralytica Verlauf; Ausgang, Ed. 8, ii.

Nonne, in his book, "Syphilis and the Nervous System," says that a genuine paresis was formerly considered incurable, but that this opinion at the present time cannot be unqualifiedly maintained. Schüle reports a case of undoubted paresis with recovery after an attack of double pneumonia. The patient remained well twenty years. Many other similar cases have been reported. The tendency among medical men to give an absolutely bad prognosis in paresis as soon as the diagnosis is made has been too general. It has been estimated that 10 per cent. of all cases undergo remissions of variable duration, and from 0.5 to 1 per cent. complete and long-continued remission. I remember that several years ago, after treating a case of paresis for a number of months, I gave a bad prognosis to the family and insisted that the patient should be sent to a state institution. Under osteopathic treatment in the course of six weeks the patient so far recovered that he was able to return to work. His remission lasted just about a year. Such remissions are not uncommon and they may come at any time. In this connection the case reported by Tuezek is worthy of mention. The patient, in 1876, when 38 years old, manifested typical symptoms of paresis, which in 1878 disappeared. In 1883 he developed tabes without any psychic symptoms, which gradually progressed. In 1898, twenty years after the beginning of his disease, he again exhibited symptoms of mental confusion and excitement along with mental enfeeblement, which two years later caused his death. According to Nissl, who made the necropsy, the pathology of the cortex was that of paresis. This case illustrates well the truth of the old German medical *Sprichwort,* "die Syphilis stirbt nicht, sie schläft nur." In making a prognosis in paresis one should always keep in mind the possibility of remissions.

During the last few years considerable effort has been made to find a suitable treatment for paresis. It has been recognized for a long time that fevers, infections and suppurations, such as pneumonia and erysipelas, often exercise a most favorable influence on the affection. There are many observations in which the disease has been brought to a period of quiescence through such intercurrent affections. According to Metchnikoff the important factor in exerting this beneficial influence is the leukocytosis caused by infections of this kind. Wagner's tuberculin treatment, the injections of mixed cultures of dead bacilli and sodium nucleinate, first suggested by Donath[6] of Budapest, were proposed for the purpose of artificially creating this leukocytosis. For two years I have been using injections of sodium nucleinate in cases of paresis under my care. The sodium nucleinate was given in the following manner: Two and one-half gm. of the drug were dissolved in 100 c.c. of normal salt solution made from distilled water and sterilized. The injections were administered weekly. Forty c.c. were given at the first injection and the quantity was increased each week by 20 c.c. until 100 c.c. had been injected. Then the weekly dose was further increased by adding 0.5 gm. of the sodium nucleinate to the solution until the maximum dose of 5 gm. was reached. All of the injections were made into the muscles of the nates. In the eight cases so treated, the four reactions were taken at the beginning of the treatment in each case and then again at various intervals during its course. A leukocyte count was also made before and after the injections. At different periods during the treatment an intravenous injection of salvarsan was alternated each week with the sodium nucleinate. The influence of the treatment on the four reactions was somewhat irregular and uncertain and did not always correspond with the clinical symptoms of the patient. For instance, in one case after the salvarsan injection the positive Wassermann in the blood became negative while the condition of the patient was growing worse. In general the effect of the treatment was to lessen the intensity of the reactions. The reactions in the spinal fluid were not influenced to so great an extent as was the blood-reaction. In none of the cases did any of the three reactions in the spinal fluid become negative. From one to two hours after the injection the patient usually had a chill, which was sometimes very severe. This was followed by a rise in temperature, the temperature often going as high as 103 and 104 F. Usually the temperature became normal again in from twenty-four to forty-eight hours. The number of leukocytes was always increased after these injections, sometimes being twice the number they were before twenty-four hours after the injection. In two cases rather severe suppuration and abscess formation followed the injections. In one case there was a rise of temperature for two weeks as a result of an abscess. In this case at present there is a complete remission. All of the eight cases were well advanced. Two of the patients in this series of cases manifested no improvement whatever, but grew steadily worse. Two had short remissions, one of a month's duration, the other of four months, complete enough so that they were able to return home and care for themselves, but not able to resume their occupations. Two patients who showed considerable improvement are still at home and have been for more than a year. One of these had exceedingly severe symptoms. He was confined absolutely to bed, frequently had involuntary urination and stools, had to be fed by tube and did not speak for several months. While in the hospital he developed severe decubitus. This patient received three salvarsan and twenty sodium nucleinate injections. His remission came rather suddenly. One day he simply waked up—like Rip Van Winkle—and began to talk and manifest an interest in things around him. From being an animal that was just alive, he became something of a human being, clean in his habits, and able to make his own toilet and to go down town and to church alone. His mind was free from delusions, but somewhat enfeebled. A recent letter from his wife states that he is not so well and she fears that he will have to be placed in the hospital again. The other patient received twenty-four injections of sodium nucleinate, after which he returned home in very fair condition. He remained quite well for six months, then suddenly had a severe attack of convulsions, following which he lost his speech entirely. He was returned to the hospital and this time received three salvarsan and eight sodium nucleinate injections of 5 gm. each, the last injection being given in December, 1912. An inquiry, May 1, regarding his condition, elicited the information that he had not been so well mentally and physically for years as he is at present. Of the eight patients treated, two are dead, two are in one of the state institutions and four are still at home. Of these four, the mental condition of two is that of a rather moderate simple dementia. The mental and physical health of the other two is excellent.

This treatment, according to the results which I have obtained, cannot be said to be a great success. It seems, however, to have exercised in varying degree a favorable influence in all the cases with the exception of two. Since the discovery of the Wassermann we have been saying no syphilis, no paresis. We are now able, since the finding of the spirochetes in the tissues of the brain and spinal cord, to go a step farther and say, no spirochetes, no paresis.

---

[6] Donath: Salvarsan in der Behandlung der syphilischen und metasyphilitischen Erkrankung des Nervensystems und dessen kombinierte Anwendung, München. med. Wchnschr., Oct. 22, 1912, Seite 2342

These recent contributions to the subject of metasyphilis have taught us especially two things; first, the nature and location of the enemy; second, the great importance of an early diagnosis, if we wish to have a reasonable hope of destroying him.

Lowry Building.

ABSTRACT OF DISCUSSION

Dr. C. Eugene Riggs, St. Paul: The discovery of the *Spirochaeta pallida* in the brain of the paretic has been the signal for the passing of parasyphilis. There is not the slightest question, I believe, but that paresis is nothing more nor less than a phase of syphilis due to the direct action of the spirochete. I do not mean to convey the idea, however, that the pathologic process in syphilis is the same as that in paresis. In syphilis we have endarteritis, gumma and meningitis; in paresis we have degeneration of the neuron tracts of the spinal cord and of the brain. Why in the one instance we have a degenerative process and in the other a syphilogenous process is a question hard to explain. Possibly the personal equation has something to do with it, or a special toxicity of the spirochetes. Mott cites an instance in which one woman infected five men and every one of those men had paresis. As Dr. Ball has said, we are dealing with a syphilitic process, with the direct influence of the *Spirochaeta pallida* on the nervous system. This gives us a reasonable basis for the use of salvarsan in these cases.

In referring to the early stages of paresis, in which we have vertigo and epileptiform and apoplectiform attacks, Dr. Ball asks whether these symptoms indicate paresis or nervous syphilis. This is a question. The indication is certain, however, for the use of the appropriate remedy in a positive, definite way.

Dr. Ball speaks of a remission of twenty years in one case. There are instances reported of even longer remissions. In referring to the question of recovery he was careful in choosing his words. I think that this is extremely questionable, because if a really degenerative process once takes place, the degenerated tissue cannot be repaired.

Dr. S. S. Glasscock, Kansas City, Kan.: There are undoubtedly some symptoms of beginning paresis that we have overlooked. In the future we shall be able, though these symptoms be ever so insignificant, to make an early diagnosis of paresis, and, by the use of salvarsan, or some other remedy to be developed later on, to treat these cases at a time when we can cure them. I am inclined to think that this knowledge will stimulate among men who have had syphilis the idea that just as soon as they have any nervous manifestations they should see a man competent to make the diagnosis. Possibly, moreover, if they have not the symptoms of the disease, and these examinations are made, we may be able by the use of salvarsan to eliminate from the system the spirochete, by that means ultimately eliminating locomotor ataxia and paresis.

It would be well for us to consider in regard to salvarsan whether or not arsenic, even though it be in a non-toxic form, given in large doses or administered repeatedly in these cases of syphilis, may not ultimately (when a period of years has passed and paresis or locomotor ataxia may be expected to develop) because of its toxic properties have so profound an influence on the nervous system that this will tend to increase the number of cases of paresis and locomotor ataxia instead of decreasing them.

Dr. Lawrence B. P[illegible]sbury, Lincoln, Neb.: We are badly in need of a critical te[illegible] for paresis, especially in the early stages. At present I ha[illegible] to have under my care a man about 65 years of age who came to the hospital with a history of some loss of judgment and some disturbance of emotion. He was jealous of his wife, probably unjustly so, and had a coarse tremor in both hands and a shuffling gait, holding his head forward, but with no definite tendency to propulsion or retropulsion. I felt doubtful as to what I was dealing with until I performed lumbar puncture. Both blood and spinal fluid gave a positive Wassermann reaction. There were 130 cells and increased protein in the fluid. He now has a coarse tremor of about four per second. I suppose that it is a case of paresis. The symptoms began only some six or eight months ago.

Another case was that of a man about 35 years of age whose case I reported to a medical society as typical of paranoid dementia with grandiose delusions pretty well systematized and fairly constant. At that time I could discover no motor symptoms and no physical findings that would lead one to think that he had paresis, but I will admit that I did not puncture him as I should have done. Later on I punctured and found an increase in cells and protein. He now has a slight inequality of the pupils, and his face has flattened out somewhat, with just a mere suggestion of tremor of the facial muscles. He is neat and clean and industrious on the ward.

Another case was that of a man of about 44 years of age who was formerly in the hospital as an undoubted case of manic-depressive insanity in the depressed phase. Twenty years ago he recovered and went away. He had a manic-depressive family history. One of his sisters is in the hospital now and has been there repeatedly. A year before he came to the hospital the last time an internist diagnosed the case as paresis. I thought he was mistaken and so stated to the patient and his friends. The patient had a well-marked hypomania and there was no amnesia that could be discovered. I punctured him at that time and failed to find any increase of cells, but discovered a slight increase of protein, which I disregarded. Later on I punctured him again and found an increase of both cells and protein. The pupils were definitely unequal and unequally responsive to light. They became so rather suddenly, for I had examined him from time to time.

Dr. Albert E. Sterne, Indianapolis: Of course, we all recognize metasyphilis as syphilis, and the condition should be treated as syphilis as early and as vigorously as possible. From some remarks that have been made one would infer that the pathology of paresis is confined to the nervous system. It is chiefly in the nervous system as neurologists see it, but there is scarcely an organ in the body that is not involved. In quite a number of cases, moreover, we find that the condition involves the central nervous system preeminently. These changes we meet in syphilis. I believe that Dr. Riggs remarked that in metasyphilis we have no endarteritis, but to this I do not agree; the secondary changes never could be influenced by the specific treatment so far as we know at the present time. Again, we must consider as coming under this category those cases of paresis which run a clinical course quite different from those that we usually see—those cases in which mental symptoms are manifested, cases of progressive dementia, without the usual euphoria, and without delusions, cases, so to speak, that fade away with almost perfect recognition on the part of the patient that he is sick. Ordinarily by the term "metasyphilis" we designate only cases of paresis, but etiologically it is of importance in other organic psychoses. We are now engaged in a careful examination into the rôle of syphilis in the development of dementia praecox, and I am anticipating a report to be made next week at the meeting in Chicago in which we shall show a positive etiology of syphilis in about one-third of the cases of clinical dementia praecox. It seems to me that in these cases, as in syphilis, we should not neglect the mixed treatment. While we may rely to a considerable degree on salvarsan, we should never neglect the adjuvant treatment which we have always used. This treatment, moreover, especially in paresis, should be given with a great deal of caution, as in my experience the use of salvarsan in these cases is not without danger. In some cases we are now using serosalvarsan, that is, blood-serum plus salvarsan, by intraspinal injection. The results are as yet too problematic to offer more than encouragement to the continuation of this particular type of treatment.

Dr. A. L. Skoog, Kansas City, Mo.: I would question the statement, "No syphilis, no paresis." Possibly reactions have not always shown up positively. There is a certain small percentage of cases in which tests give negative results. Investigators have, as stated, found spirochetes in less than 25 per cent. of cases of paresis. So this can hardly be used as a strong argument. Clinically, however, I believe that all patients with paresis originally suffer directly or indirectly from syphilis.

Dr. George A. Moleen, Denver: I would call attention to a point brought out by Dr. Pilsbury, which seems to have caused some surprise on the part of writers in the foreign journals: the question of isolated syndromes, such as the slow tremor. A case mentioned in the *Revue neurologique* (1911, xxii, 123) was taken to be one of paralysis agitans. In my own experience, a man presented a tremor, confined to the right hand, which could hardly be mistaken for anything but paralysis agitans. He presented little mental disturbance and later developed some mild persecutory ideas, as a result of which he was placed in a general hospital and observed. The tremor has continued and his mental condition has been limited to the persecutory ideas, but within the past two weeks he had a very typical apoplectiform seizure, and I think that there can be no question as to the diagnosis of paresis. The pupillary retardation could be determined only if compared to the reaction of distance, and that is often the case with those symptoms which one might consider as part of the syndrome. I think the pupil should be studied by comparing the rapidity of its reaction to light with that to convergence. Since seeing the case reported in the foreign literature, however, and hearing Dr. Pilsbury speak of it, I am reminded of my own, and thought best to recall the case here as presenting symptoms which sometimes lead to error in the making of a diagnosis of paralysis agitans, when the patient might have beginning paresis as indicated by such an isolated symptom. In my case there had been a positive Wassermann, and besides, there was a distinct, clear history of luetic infection ten years previously, treated for two years by a competent internist.

Dr. E. E. Southard, Cambridge, Mass.: If I am not mistaken we have a similar case at the hospital at present. The patient has the signs in general of paralysis agitans except tremor of the right hand. He had a positive Wassermann reaction, with a total negative finding.

In this connection I might say that at the Psychopathic Hospital statistical data show something that I should like to have explained. We have been making a monthly count of Wassermann reactions up to 31.5 per cent. in a class of cases which are perhaps a little different from the ordinary cases. In the state hospitals of Massachusetts 22 per cent. of positive Wassermanns were found in the total count of the hospitals, including paresis and all the other cases admitted. In a good many cases of dementia praecox we shall, I believe, find that we have had a positive Wassermann reaction. Whether this indicates any etiologic relationship between the *Spirochaeta pallida* and the dementia praecox is dubious. Dermatologists used to say that about 15 per cent. of their infirmary practice was specific. This has to be taken into account when we draw conclusions as to the relation of the Wassermann reaction to paresis. We do not feel that there are any exceptions to the positive Wassermann in syphilis. It has been shown that cerebellar sclerosis is not incapable of making a condition resembling that of general paresis, which may account for the few cases in which it has been absent. In a series of forty-one cases studied, two were cases of cerebellar sclerosis. There might have been positive Wassermann reactions in those cases.

The spirochetes certainly do not inhabit the neighborhood of the vessels, and while this organism may not be responsible for all the lesions in paresis, the localization of the lesion in the brain in paresis would seem to favor this idea. One wonders, of course, whether in various other diseases the symptoms may not be due to death of the spirochetes rather than to any factors connected with the living organisms. In one case the effects were traced to the cerebrospinal sheath. Pain occurred as a result of treatment in a patient in whom pains had never before occurred. We wondered, therefore, whether this result might be due to toxic elements, or to the killing of the spirochetes. One must take into account the endotoxic results of the killing of the organisms by salvarsan. Some of the results of the so called provocative injections of salvarsan may be due to these endotoxic effects, the spirochetes being killed by the provocative dose, as the result of which there are symptoms which may then be succeeded by an improvement.

Dr. W. W. Graves, St. Louis: I have long held the opinion that without syphilis there is no paresis and no tabes. That conclusion is based on the observation of others and also on personal experience, extending over a number of years of observation not only of syphilitics whom I treated many years ago, but also of their wives and children. Not only do almost 100 per cent. of Wassermann reactions on the blood in paresis lead to that assumption, but the clinical signs also, which are invariably present when associated with laboratory signs, cause us to come to the same conclusion. During the past three years I have endeavored to recognize, if possible, by microscopic and other means, the virus of syphilis, and I shall be able to present at this meeting some evidence along lines showing that it is possible to infect rabbits with the virus of syphilis direct from the blood of general paretics.

There is one other point to which I should like to refer, one I have observed not infrequently in connection with the Wassermann reaction in general paresis. It is known that a certain number of paretics will give a negative Wassermann. This finding seems to depend somewhat on the time the Wassermann test is made; if immediately following a paretic attack, or during or coincident with the attack, the reaction will not infrequently be negative, while if made during the remission the reaction is almost invariably positive. I interpret the phenomenon in this way: The system is so overwhelmed by the sudden development of the ever-present virus that antibodies on which the Wassermann reaction in all probability depends are not produced, and hence it happens that negative reaction may be obtained even in general paresis.

Dr. Charles R. Ball, St. Paul: From a close observation of the cases reported, and most of them I have had an opportunity to observe over a number of months, it is my impression that the injections of sodium nucleinate exert a much better influence on the symptoms than either salvarsan or mercury. The patient who received the largest number of salvarsan injections—eight in all—after a short period of improvement rapidly grew worse. The two patients, who at present, except for their somatic symptoms, are apparently well, have resumed their former occupations. Both of these patients I am still keeping under antispecific treatment during this period of remission. It will be interesting to know what the influence of antispecific treatment will be during this period.

New York Infant Mortality to July 19 Compared with 1912.—According to the statistician of the New York Milk Committee, for the entire city, to July 19, 1913, there were 76.175 births against 74.597 for the corresponding period last year, an increase of 1,578. The total deaths, all ages, were 44.058 against 42,799 for 1912, an increase of 1,259. Deaths under 5 years were 12,115, against 12,005 for 1912, an increase of 110. The deaths under 1 year were 7,513 against 7,729 for 1912, a reduction of 216. The diarrheal deaths were 1,100 against 1,173 for 1912, a reduction of 73. Congenital debility deaths were 2,406 against 2,423 for 1912, a reduction of 17. Stillbirths were 3,823 against 3,720, a reduction of 103 in stillbirths to date. Though it is obvious that a large number of stillbirths occurring in New York are not reported, nevertheless, the figures from the reports are valuable in showing their relation in proportion to congenital deaths in early infancy.

THE VALUE OF SANITATION AS APPLIED TO RAILWAY AND OTHER LARGE CORPORATIONS

WITH SPECIAL REFERENCE TO THE PUBLIC WELFARE [*]

M. CLAYTON THRUSH, PH.M., M. D.
PHILADELPHIA

All large industrial corporations have the health of a number of human beings to protect, and while the majority of them have only the health of their own employees to maintain and watch over, railway corporations, whose duty it is to transport the public safely from one point to another, have a far greater and more important problem confronting them; and during the past twenty years the management of most of our large railway corporations has been giving this subject more and more consideration. As a result, a large number of important sanitary regulations have already been introduced, some of these being voluntary, others the result of legislative enactment of the various states through which the road passes. There is room, however, for far greater improvement and development along the same lines before an ideal standard is reached. The whole country is becoming interested in sanitation, and as soon as the people as a whole realize the value and importance of sanitation as applied to every industry of whatever kind, then and only then shall we reach the ideal for which we are striving.

The greatest responsibilities in this connection rest on the medical profession of the United States, and the American Medical Association should be the guiding "spirit" which controls the medical profession, both individually and collectively, in educating the public to a full realization of the importance of sanitation on the public welfare in all walks of life and all lines of business, industry and labor. Let us all work for a national Department of Health with a representative in the President's cabinet; let us all work for more stringent state laws on sanitation and public health and, finally, let us all work for the adoption of higher sanitary regulations by all large industrial corporations.

For convenience of classification I have divided the sanitary regulations as applicable to railway corporations into twelve classes as follows:

1. *Relief Department.*—This is a form of industrial insurance which has been adopted by a large number of railroads and should be adopted by all. Each employee pays a certain amount out of his wages each month, and, in case of sickness or injury, he receives in return so much each day while incapacitated from duty. The amount varies according to the class of insurance taken out; most of the roads pay more for accident than for sickness. The taking out of this insurance is voluntary with some roads and compulsory with others; the latter plan, however, is preferable, as the employee's family should always be protected. This department has supervision of the men when off duty on account of sickness, and a medical inspector is sent to visit the man's home to note his condition and to give him a "return-to-duty" card when he is well enough to return to work. This department likewise examines all new employees and determines whether or not they are physically qualified to perform the duties for which they apply. Most railways have established a pension fund for employees retired through age, years of service or physical incapacitation, and this is under the supervision of the relief department.

2. *Efficiency Examination of Employees.*—This department should give every man in the "operating department" of the road a thorough physical examination at reasonable intervals, testing particularly the vision, the hearing and for color-blindness, as well as general appearance, heart, kidneys and lungs. This is of great importance in maintaining a high standard of efficiency, which is of advantage both in greater safety for the public and in larger financial returns for the road.

3. *Sanitary Inspection of Buildings.*—There should be a department for the systematic inspection of all the buildings of the company, including passenger and freight stations, and all shop, storage and office buildings, which should note the ventilation, plumbing, condition of diet-kitchens and rooms for the storage of food products and live stock. The drinking-water should be carefully analyzed at reasonable intervals, and proper receptacles should be provided for holding this water. The abolition of the common drinking-cup should be insisted on, and sanitary cups should be provided either free or at a nominal price. This department should include the supervision of the loading of freight-cars with foodstuffs and live stock, and also observe that proper sanitary measures are utilized to protect the health of the men employed in the various construction and repair shops of the company.

4. *Sanitary Inspection of Road-Beds.*—Inspection should be made at reasonable intervals by men properly qualified to note especially that proper drainage canals are provided at the sides of the tracks, that all tunnels and tubes are properly ventilated and also that all water courses are kept free from filth and stagnant material.

5. *Inspection of New Construction.*—All new constructive work, whether road-beds or buildings, should be done on a sanitary basis, and should be approved by this department. Whenever a new piece of work is undertaken, the camp, drinking-water, etc., should all be under sanitary regulations.

6. *First Aid to the Injured.*—This department should require every employee to be properly instructed in rendering first aid to the injured, whether passenger or employee; and each employee should be given a sanitary package containing proper materials for rendering such service, and he should be taught how to use this material. Each employee should have this package with him whenever he is on duty.

7. *Sanitary Inspection of the Rolling Stock.*—This would include the frequent inspection of all passenger and Pullman coaches, and also all freight-cars which transport live stock and perishable merchandise. All cars should be kept in a proper sanitary condition, including the diet-kitchens of dining cars. The drinking-water and the condition of the receptacles holding it are matters of the greatest importance, and only sanitary drinking-cups should be permitted. Every one who has traveled, even to a minor degree, has witnessed the uncleanly and often filthy manner in which the drinking-water receptacles on passenger coaches are filled with ice and water, this work being usually performed by the cheapest, ignorant laborer, who handles the ice with dirty and unwashed hands, often reeking with coal dirt and "smear" from off the sides of the car, which he grasps in order to raise himself to the top of the car; and sometimes his hands are contaminated with what is far worse, namely, the infectious material of some venereal disease, which is particularly common among this class of employees. The same conditions often apply to the filling of the

---

[*] Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

water "coolers" of passenger stations. May we not reasonably ask, "Of what value is the individual drinking-cup in protecting the public, when the water is already polluted with poisonous material?"

Of course "spitting" in all public places cannot be too strongly condemned; especially does this apply to the passenger coach of a railway train. Almost all the cooks, dishwashers and kitchen-helpers who participate in the preparation of the foodstuffs used in dining-cars and in the restaurants of our railways are colored; and the great majority of the waiters also belong to this class; it is a well-known fact that people of this class frequently suffer from tuberculosis, diseases of the eye and skin, particularly syphilis and other communicable diseases. Last December the attention of the newly elected president of the Pennsylvania Railroad (Samuel Rea) was called to the facts which are here presented. It is refreshing to note, in a bulletin issued in April, 1913, by the Pennsylvania management, the following result, and it is earnestly hoped that all railways will speedily adopt the same regulations.

Waiters Must Be Healthy

THOSE HAVING COMMUNICABLE AILMENTS MUST LEAVE

> The following extraordinary precautions against the transmission of communicable diseases by the dining-car and restaurant employees have been adopted:
>
> There is to be a quarterly physical examination of every employee who has anything to do with the preparation or serving of food. Dishwashers, kitchen-helpers, cooks and waiters must undergo an examination every three months, and only a 100 per cent. report on their physical condition will permit their remaining in the service, while those suffering from tuberculosis, diseases of the eye or skin, and any other communicable disease, may not be employed in any capacity in which they might come in contact with food; further precaution will be taken in debarring them from employment in places in which linens and tableware are kept.

Now let us consider the question of the drinking-water, another very important subject.

SURGEON-GENERAL BLUE ANNOUNCES STRICT REGULATIONS

> Washington, May 16, 1913.—Four months ago notice was served on all interstate railway and steamboat carriers that the drinking-water provided by them for the use of passengers must be certified as free from anything liable to cause disease in man. Surgeon-General Blue of the Public Health Service to-day announced the promulgation of regulations relative to the certification of the water and ice furnished to passengers in interstate traffic. They are as follows:
>
> "Samples of water and manufactured ice from each and every source of supply should be subject to bacteriologic and chemical examination at least once in every six months by the proper state or municipal health authority within whose jurisdiction the supply is obtained, or by other person or persons competent to make such examinations, and whose result will be accepted by the state or municipal health authority whose duty it is to issue certificates. Each new crop of natural ice should be examined and certified before use. The common carrier desiring a certificate of the state or municipal health authority within whose jurisdiction the water or ice is obtained should make application therefor." The Pennsylvania Railroad, as an advance step toward complying with these regulations, on May 1, 1913, ordered that all water receptacles on all passenger-coaches should be sterilized with steam at least once a week.

Pure Water on Trains

Surely this is a step in the right direction, and this whole subject is of vital importance to every human being, as we must all eat and drink at reasonable intervals. This is but the commencement of a "sanitation crusade" which I trust will spread across this whole country.

These regulations should apply with the same degree of importance to steamship companies, hotels, restaurants, clubs, pleasure resorts and in fact all places which handle foodstuffs for public consumption. It is the duty of the legislature of each and every state in the Union to adopt suitable laws on sanitation which will insure to every person within its borders pure food and drinking-water, in all public places of whatsoever character; this can be accomplished only by adopting strict sanitary regulations, comprising not only those that are herein described, but also such others as may be recommended by properly qualified health officers to meet the exigencies as they may arise.

People should protect themselves and their children and force cleanliness on careless dealers by refusing to patronize soda-water fountains, etc., where the glasses are not thoroughly washed after each use. Hasty rinsing in cold water may appear to clean the glasses, but it is only an apology. Glasses or cups with broken or rough edges present another danger.

The use of the common roller-towel in public places is just as dangerous as the common drinking-cup, and all that has been said of the latter applies with just as much force to the former. Persons should be especially careful not to use a common towel near their eyes, as dangerous eye-diseases, which may cause blindness, are often contracted in this way. An enlightened public sentiment is absolutely necessary before we can hope to eliminate entirely all these grave and unnecessary menaces to the public welfare.

8. *Supervision of Railway Surgeons.*—All surgeons of a railway system should be governed by a directing head or surgical director; they should be required to make stated reports of all duties performed, and a certain standard of efficiency should be required of them.

9. *Medicolegal Department.*—This department alone, if properly conducted, would save the company many thousands yearly. In the case of all wrecks this department should be promptly notified, and competent men should be hurried to the scene of the disaster to take charge of the injured, see that proper surroundings are provided for their care, note the extent of their injuries, and keep a close supervision of every case until a settlement is made releasing the company from further claim; or if the case goes to court for adjustment, this department would take charge of the medical testimony for the company.

10. *Supervision of Hospitals and Dispensaries.*—All hospitals and dispensaries that are conducted by the company should be properly managed, and competent surgeons should always be on duty ready to relieve the injured.

11. *Purchasing of Medical and Surgical Supplies.*—This should be done by competent and experienced persons who are familiar with the best available sources for purchasing the needed supplies.

12. *Department of Statistics.*—A complete system of records should be kept at the general office of all injuries and deaths that occur on the road, and also a complete record of each employee from the medical point of view. These facts would prove of great value at times for reference.

CONCLUSIONS

The following recommendations are applicable to all large railway corporations as the result of these observations:

1. All railway corporations should have a "department of health and sanitation," which should direct and control all matters pertaining to the medical welfare of both its employees and the public.

2. There should be an expert sanitarian in charge of this department who should be a doctor of medicine, and he should be given a suitable title, such as "director of health and sanitation." He should have the same authority in this department that the general manager has in the "operating department" of the road.

3. He should work directly in conjunction with the general manager, both being under the supervision of the president of the company.

4. There should be twelve department superintendents, each of whom should have direct supervision of a particular department as herein enumerated; and these should be controlled and managed by the medical director.

5. The director's office should be located at the general headquarters of the company.

6. The adoption of this plan would consist in consolidating and systematizing all the various medical departments of the road under one directing head or management, resulting in more efficient service with less expenditure of capital and producing a condition of greater safety and protection to the traveling public, who pay for and should receive "safe transportation under sanitary regulations."

3705 Spring Garden Street.

ABSTRACT OF DISCUSSION

Dr. W. C. Rucker, Washington, D. C.: I have a personal interest in this matter because, as chief of the division of interstate quarantine, it comes within my immediate purview. Under the law of Feb. 15, 1893, regulations may be made for the prevention of the spread of disease from one state or territory into another state or territory, or the District of Columbia. That is translated as meaning that the common carriers may be regulated in order to prevent the interstate spread of disease. The Supreme Court of the United States, in a decision rendered not long ago, decided that a common carrier—whether it was a firm, corporation or person—was engaged in interstate traffic when it carried a person, freight, or a letter that was destined for a point outside a state.

The order of May 16, 1913, which was quoted by Dr. Smith, was a set of instructions which were issued to cover Amendment No. 6 to Paragraph 3 of the General Regulations. This amendment includes the following points: In the first place, the sources of water to be used as drinking-water by passengers in interstate traffic shall be certified by the proper state or municipal health officer within whose jurisdiction it is obtained as being incapable of conveying disease, or, in other words, as not containing disease organisms. This water shall be certified once every six months. The amendment further requires certification of ice in the same manner. This ice must be examined once every six months, if it is artificial ice, and for every crop if it is natural ice. The ice shall be so handled that it shall not be contaminated with disease-producing organisms. The water-containers from which this water is dispensed to the general public shall be sterilized once a week while in operation. That regulation is being carried out. The railways and steamboats are doing their best to comply with it. One railway is spending $46,000 for the purpose of putting in tanks in which the water and ice do not come in contact. Another railway is spending about $15,000 putting in tanks that are to be filled from the roof only. That is necessary, because in many states in which the low tank is used, labels off beer-bottles, nipples off of nursing-bottles, etc., are found in the tanks when opened for cleaning. The common drinking-cup is absent from the common carriers in the United States, as a result of an amendment to the interstate quarantine regulations which forbids absolutely that a common carrier engaged in interstate traffic shall supply common drinking-cups to the traveling public. The use of a common roller-towel is equally against the regulation. A depot or a waiting-room used by common carriers is just as much a part of the system that is engaged in interstate traffic as the engine or the roundhouse, and the regulations apply with equal force to these places.

Dr. A. M. Hume, Owosso, Mich.: I have had in charge the sanitary work of a small railway, in addition to the management of the surgical department and all of the departments that would be included in the suggestions offered by Dr. Smith. In my opinion it is not practicable to divide this work into so many departments. Greater proficiency will be attained if the work is put in charge of a competent man who is a railway surgeon and sanitarian, and who has proper executive ability.

The common towel and the common drinking-cup have been abolished from almost all the railways in the country through the order of the U. S. Public Health Service, reinforced by the regulations of some of the state boards of health. The Michigan State Board of Health abolished the common drinking-cup prior to the U. S. Public Health Service order, and there has been a willing compliance by that board, and others too, I presume, with all of the regulations that have been issued by the U. S. Public Health Service. Unfortunately, however, this right attitude of state boards of health is not universal. At the meeting of the chief surgeons of railways held in Chicago not long ago, when the subject of certified drinking-water for use on trains was under discussion, there was an expression from at least one state board of health that it proposed to run its own business and would not allow dictation by the U. S. Public Health Service. When that Service prohibits the use of only such drinking-water as has been certified to by the state board of health, and state boards refuse to certify any water, the railway companies are placed between two fires.

Some boards have intimated that they would do this work if paid for it, but we contend that, as this is a measure for the protection of the public health, the public and not the railway companies should bear the expense of such protection. The willingness of the railway companies generally to comply with this regulation is not questionable; but the willingness of some state boards of health to do their part is very questionable.

Dr. Albert E. Campbell, Chicago: I was in private practice and a health officer when I was asked to become health officer of the Illinois Central Railroad Company. The water-tanks on our system were sterilized eight or ten months before the U. S. Public Health Service ordered it done.

Dr. C. C. Pratt, Mankato, Minn.: I have frequently seen the news-agent take a new drinking-cup, drink from it, and then fold it and put it back in his stock for sale to the traveling public.

Dr. R. Q. Lillard, Nashville, Tenn.: I should be recreant to my trust if I did not say a word for the railway. Every railway system in Tennessee is heartily in accord with the U. S. Public Health Service order, and is most willing to carry it out to the letter. Furthermore, they heartily acquiesce in any proposition that will protect the traveling public.

Dr. Margaret A. Ryan, Brookston, Minn.: Why is it that since they have removed the roller-towel, they do not replace it with the sanitary paper towel?

Dr. M. Clayton Thrush, Philadelphia: I fully agree with Dr. Rucker that the U. S. Public Health Service has already done splendid service along these lines; I think that the railways will continue to improve existing conditions. We cannot expect a railway system to take up a new order and perfect it in a few months; all the railway systems continue to possess many objectionable features, but these are being eliminated rapidly. The system that I have expounded here was intended for large railway corporations. Every railway would, of course, make its own system of classification; but this would merely be a guiding system, which can be modified to suit the various railways according to the size of the corporation and the various other underlying conditions.

MIXTURES OF THE UNITED STATES PHARMACOPEIA

OLIVER T. OSBORNE, M.D.
Professor of Therapeutics at Yale; Vice-President of Pharmacopeial Convention
NEW HAVEN, CONN.

This paper is to complete the series of three which I have recently written on the subject of a better, more limited Pharmacopeia.[1]

I seriously question the advisability of including the following mixtures in the next Pharmacopeia, on the ground that many of the ingredients are needless and useless, and, in fact, that these multiple mixtures are unscientific. The preparations in questions are:

Elixir adjuvans.
Elixir ferri, quininae et strychninae phosphatum.
Extractum colocynthidis compositum.
Infusum sennae compositum (black draught).
Liquor ferri et ammonii acetatis (Basham's mixture).
Liquor sodii phosphatis compositus.
Massa hydrargyri.
Mistura glycyrrhizae composita (brown mixture).
Mistura rhei et sodae.
Pilulae catharticae compositae.
Pulvis aromaticus.
Pulvis cretae compositus.
Syrupus hypophosphitum compositus.
Syrupus sarsaparillae compositus.
Syrupus scillae compositus.
Tinctura benzoini composita.
Tincture lavandulae composita.

This is the age in which we are analyzing and criticizing everything in the therapeutic line, and why should we accept as gospel, and as above criticism, such mixtures as the preceding titles represent? We decry proprietary mixtures and "shotgun" prescriptions; why do we accept these legacies of ancient vintage because the Revision Committee of the United States Pharmacopeia sees fit to perpetuate such therapeutic nonsense?

Let it be repeated and emphasized, as I have done, that the omission from the next Pharmacopeia of any drug or preparation does not deprive a physician from obtaining that drug or preparation by the standard of the last Pharmacopeia in which it was described. The omission of useless drugs and worthless and unnecessary preparations from the next Pharmacopeia means that the Pharmacopeia is so much more up to the present date of science and therapeutic knowledge. It should also be understood that the object of the Pharmacopeia should be to standardize useful drugs and their most elegant (pharmacally) preparations, but its object should not be to show how elegantly a heterogeneous mass of substances can be combined according to the art of pharmacy.

To discuss these mixtures understandingly I shall group them according to their therapeutic uses.

One should give the drug he thinks advisable in the pleasantest manner possible, and he should select the best preparation of the most active drug to accomplish the object desired. If this drug tastes disagreeable it should be made more palatable, if possible. It should rarely be combined with sweet syrups, lest the bad taste be made more persistent. If the drug is irritant, it should not be given on an empty stomach unless with a large amount of water, or by adding something to the prescription that will prevent irritation of the stomach. Just how the drug should be administered, whether in the form of liquid, powder, wafer, capsule or pill, must of course depend on the character of the drug, the size of the dose, and the object aimed at. Presumably a drug given in solution is more rapidly absorbed than one that is not. This may not always be the fact.

Elixir Adjuvans, U. S. P.

This elixir was official in the last Pharmacopeia and has been approved for the next Pharmacopeia. The formula is the following:

- Fluidextract of glycyrrhiza.
  - Glycyrrhiza.
  - Glycerin.
  - Ammonia water.
  - Alcohol.
  - Water.
- Aromatic elixir.
  - Compound spirit of orange.
    - Oil of orange peel.
    - Oil of lemon.
    - Oil of coriander.
    - Oil of anise.
    - Alcohol.
  - Syrup.
  - Purified talc.
  - Alcohol.
  - Distilled water.

These compound preparations, namely, fluidextract of glycyrrhiza and aromatic elixir, are put together in the proportion of 12 parts of the former to 88 parts of the latter in each 100 parts of the mixture. The instructions are to mix, and filter if necessary. In this mixture it is too bad to spoil the nice (?) distilled water of the aromatic elixir with the plain, every day water of the fluid extract of glycyrrhiza, but this was of course not noted by the advisory board of the last Pharmacopeia.

This preparation, elixir adjuvans, and the aromatic elixir may be considered as cocktails or as menstrua for other ingredients of a cocktail, but represent substances that should ordinarily not be given to a person who is ill. We tell our patients not to take highly spiced foods, not to use irritant and aromatic condiments, and then order such combinations as the above.

The question is whether an elixir composed of the above ingredients is ever needed in the practice of medicine. It absolutely is not, and the care and time devoted to the preparation of the elixir adjuvans in all its details is labor lost. It may taste well, but it is not necessary to use such a mixture of tastes to disguise a bad-tasting drug, and the number of tastes put into this one preparation, namely, the elixir adjuvans, would defy a decision by an expert tea-taster as to just what the taste was that he tasted. In other words, this multiple mixture is unnecessary and should not appear in the next Pharmacopeia, i.e., it should not appear in a scientific book of the year 1913 or 1914.

Tinctura Lavandulae Composita, U. S. P.

Oil of lavender flowers.
Oil of rosemary.
Cinnamon.
Cloves.
Nutmeg.
Red saunders.
Alcohol.
Water.

This very elegant tincture or cocktail (about two-thirds of its bulk being alcohol) for the esthetic treatment of hysterical conditions and nervous indigestions should not be dignified by officialization in the next Pharmacopeia. These patients could be given small doses of any good cocktail and the result would be the same. Let us not cater to such aromatic, alcoholic fallacies. We should be honest with ourselves and remember that such treatment is treatment by alcohol.

---

[1] The Journal, May 10, 1913, p. 1427, and June 28, 1913, p. 2039.

TONIC MIXTURES

The following are tonic or alterative mixtures official in the last Pharmacopeia and approved by the Executive Committee for the new one:

Elixir ferri, quininae et strychninae phosphatum.
Liquor ferri et ammonii acetatis (Basham's mixture).
Syrupus hypophosphitum compositus.
Syrupus *sarsaparillae compositus.*

The ingredients of these mixtures are the following:

Elixir Ferri, Quininae et Strychninae Phosphatum, U. S. P.

- Soluble ferric phosphate.
- Quinin.
- Strychnin.
- Phosphoric acid.
- Ammonium carbonate.
- Alcohol.
- Acetic acid.
- Ammonia water.
- Distilled water.
- Aromatic elixir.
    - Compound spirit of orange.
        - Oil of orange peel.
        - Oil of lemon.
        - Oil of coriander.
        - Oil of anise.
        - Alcohol.
    - Syrup
    - [Purified talc]
    - Alcohol
    - Distilled water.

This is no parody but absolute facts copied from the Eighth Decennial Revision of the United States Pharmacopeia. How many physicians, after reading the above, will deliberately and sanely order this tonic "soup"?

It is hardly necessary to discuss the value of the mixture. A chemist could tell us whether or not the phosphoric acid or the acetic acid would combine with the quinin and the strychnin to make phosphates or acetates, whether or not the ammonia water would counteract the acidity of the phosphoric acid and the acetic acid, just what would become of the ammonium carbonate, just exactly what the alcohol is doing in preventing or promoting chemical changes, and exactly what the patient really receives when he takes a teaspoonful of this chemical nonsense.

Theoretically, the patient receives about 1¼ grains of soluble ferric phosphate, unless something happens to this phosphate in the chemical combination. Likewise, he receives a little more than ½ a grain of quinin and about 1/60 grain of strychnin. The dose of this tonic is stated to be 4 c.c. or a fluidram, and it generally is administered three times a day. The preceding approximate doses that the patient would actually receive are based on the probable administration of a teaspoonful at a dose.

Do the scientific physicians of the year 1913 desire this hodgepodge mixture officialized in the next Pharmacopeia?

Liquor Ferri et Ammonii Acetatis (Basham's Mixture), U. S. P.

- Tincture of ferric chlorid.
- Dilute acetic acid.
- Solution of ammonium acetate.
    - Ammonium carbonate.
    - Dilute acetic acid.
- Aromatic elixir (seven ingredients besides alcohol and water, see above).
- Glycerin.
- Water.

This preparation has long been considered of special value in disease of the kidneys, but as usual with many such mixtures it has been inherited and has been passed on from generation to generation without a question as to the reasons for the combination or its advantages over more simple preparations. In this mixture the iron probably becomes an acetate, and part of the ammonium acetate becomes ammonium chlorid. It decomposes more or less rapidly and should be freshly made when ordered.

Theoretically the aromatics in this preparation are not needed, even if they did no harm, in kidney defect.

It seems absurd to perpetuate a mixture of this number of ingredients when the whole object aimed at is to give iron in a pleasant and diuretic form. The tincture of the chlorid of iron may be given in from 1 to 3 drop doses in a small glass of freshly made lemonade, or it may be given in a mixture such as the following:

		gm. or c.c.		
℞	Tinctura ferri chloridi....	5		flʒ iss
	Syrupi acidi citrici.......	25	or	fl℥ i
	Aquae ....q. s. ad	100		fl℥ iv

M. et Sig.: *A teaspoonful, in water, three times a day, after meals.*

Or, the saccharated oxid of iron *(Eisenzucker)* may be given in tablet form; or the reduced iron, in small amount, may be given in a dry capsule; or the Blaud pill may be given. They will all answer the same purpose as far as the tonic effect is concerned. In other words, it is an insult to our intelligence to perpetuate this mixture just because it has a good inheritance and because it is used in almost every hospital in the country.

Syrupus Hypophosphitum Compositus, U. S. P.

Calcium hypophosphite.
Potassium hypophosphite.
Sodium hypophosphite.
Ferric hypophosphite.
Manganese hypophosphite.
Quinin.
Strychnin.
Sodium citrate.
Diluted hypophosphorous acid.
Sugar.
Water.

It is not necessary to repeat the argument against this mixture. The value of hypophosphites is mythical, and that being a fact, it should throw the whole mixture into disrepute. (See discussion of hypophosphites, The Journal, March 8, 1913, p. 747.)

Syrupus Sarsaparillae Compositus, U. S. P.

Fluidextract of sarsaparilla.
Fluidextract of glycyrrhiza.
Fluidextract of senna.
Sugar.
Oil of sassafras.
Oil of anise.
Oil of gaultheria.
Water.

There is absolutely no excuse for the next Pharmacopeia perpetuating the sarsaparilla fraud. The sarsaparilla nostrums on the market are enough to condemn any sarsaparilla mixture as a medicine, and the value of sarsaparilla as a drug is nil. Therefore, this mixture of spices and laxatives, glycyrrhiza and senna, is utterly uncalled for. If the object of this mixture is only as a menstruum for a bad tasting drug, such as potassium iodid (in which the latter was for a long time frequently administered) it is a failure. It did not improve the taste, and (it has long since been decided) was a very poor method of administering potassium iodid. It is absurd for this preparation to enter the next Pharmacopeia.

EXPECTORANT MIXTURES

Preparations for this object that have been approved for the next Pharmacopeia, and are inexcusable multiple mixtures, are:

Mistura glycyrrhizae composita (brown mixture).
Syrupus scillae compositus.
Tinctura benzoini composita.

Mistura Glycyrrhizae Composita, U. S. P.

Pure extract of glycyrrhiza.
Syrup.
Acacia.
Camphorated tincture of opium.
    Powdered opium.
    Benzoic acid.
    Camphor.
    Oil of anise.
    Glycerin.
    Diluted alcohol.
Wine of antimony.
Spirit of nitrous ether.
Water.

This long, much-used preparation, believed in by everyone, many times used as the last ingredient or menstruum of a multiple cough mixture, can be criticized only in a spirit of bravado and temerity. It is like attacking a household god. From beginning to end it is a fool mixture. The mere fact that a patient has a cough is no reason that he should also be forced to have a sour stomach. I have repeatedly urged that sweet syrups should not be given as menstrua for the administration of some efficient expectorant drug. This mixture should not be used for the following reasons:

1. If a laxative action is required it may be induced in a much better way than by this extract of glycyrrhiza.

2. This dear old time-honored paregoric, which alone contains six ingredients, which it has been claimed was introduced into medicine at the Leyden University early in the eighteenth century, contains too small an amount of opium to be of any sedative value in this compound licorice mixture.

3. It takes but little water to precipitate the camphor of the mixture. The addition of paregoric to any cough mixture is absurd, as there always is a precipitate. If some sedative or opiate is needed, morphin, codein, or even heroin may be used to very much better advantage and with very much more homogeneous results. The dose of opium administered by paregoric in a mixed solution is absolutely uncertain.

4. As I believe there will be no wine of antimony in the next Pharmacopeia, the antimony that will be used in the mistura glycyrrhizae composita is not determinable at this writing. Be that as it may, antimony should, theoretically, according to modern pharmacologic and therapeutic belief, not be given internally at all, with the possible exception of tartar emetic being used in small doses, more or less frequently repeated, to the point of nausea (which should occur within a few hours) in an acute inflammation of the upper air passages. There is no other legitimate use for antimony. The addition of antimony to a cough mixture to be used any longer than the first twenty-four hours, in any dose that would be tangible, is not good therapy.

5. Sweet spirit of niter to be of value must be freshly made. Nitrites will cause more or less dilatation of the peripheral blood-vessels, and the sweet spirit of niter, when freshly made and frequently administered, in small doses, with a patient in a warm room and covered up, may cause perspiration. When such is administered in cold water, and the patient is not too warm, it may cause some slight increase in the amount of urine. To obtain these actions at all the drug must be frequently administered, and its activity in such a combination as the preceding brown mixture is too doubtful for thoughtful consideration.

It is not desired to intimate that the preparation would do any harm, except possibly to cause nausea from its sweetness. It certainly would not increase appetite. It might constipate, or it might cause looseness of the bowels, depending on the drug to which the patient was the most susceptible, the opium and camphor or the licorice. But when simple drugs, associated to meet the indications in the individual patient will act therapeutically most successfully, why should the next Pharmacopeia honor this old-time mixture with its ratification?

Syrupus Scillae Compositus, U. S. P.

Fluidextract of squill.
Fluidextract of senega.
Tartar emetic.
Purified chalk.
Sugar.
Water.

This is another combination with antimony, and the advisability of using antimony internally has already been discussed. There is no excuse for ever using senega; there is little excuse for ever using the nauseating, disgusting squill as an expectorant.

Also, each 100 c.c. of this mixture contains 75 gm. of sugar, i. e., in every teaspoonful of this sickish, sweetish, nauseating, nasty mixture there is contained 3.75 gm., or about 57 grains, of sugar. These facts are certainly enough to condemn the use of this old "hive syrup," the hobby of our great-great-great-grandmothers.

Tinctura Benzoini Composita, U. S. P.

Benzoin.
Purified aloes.
Storax.
Balsam of tolu.
Alcohol.

This preparation is now rarely given internally, although the last Pharmacopeia gives the dose as 2 c.c., *30 minims*. This mixture also partakes of the past, when the preparation was frequently used as an expectorant, administered internally. It is now generally conceded that these balsams are not of great benefit to the stomach, and that if a patient needs the laxative effect of aloes it had better be administered in some more *pleasant manner* and not given frequently as a cough mixture is supposed to be administered. Therefore, internally, the preparation is a failure. It is frequently used for inhalation, and the balsams and benzoin thus vaporized are doubtless of value in many conditions of the throat, larynx, and larger bronchial tubes. But why should aloes be administered in a preparation whose only value is that of an inhalant? The preparation would also be better without the irritant action of storax.

CATHARTIC MIXTURES

Extractum colocynthidis compositum.
Infusum sennae compositum.
Liquor sodii phosphatis compositus.
Massa hydrargyri.
Mistura rhei et sodae.

Infusum Sennae Compositum, U. S. P.

Senna.
Manna.
Magnesium sulphate.
Fennel.
Water.

This ancient and nauseating mixture has been accepted for the new Pharmacopeia. No one could question its efficiency, but everyone could question the object of the manna. The dose of this nauseating drink is 4 fluid ounces, or 120 c.c., and the druggist is supposed to make 1,000 c.c. of the preparation. The question is how long it would take to make it, and how long this preparation should be kept, and what a dose of magnesium sulphate given in this form would cost the patient. The whole proposition is bad sense pharmacally, economically and therapeutically. If the patient needs a cathartic, he can receive magnesium sulphate in some pleasant effervescing form, or he may be given some other of the many simple cathartics.

Liquor Sodii Phosphatus Compositus, U. S. P.

Sodium phosphate.
Sodium nitrate.
Citric acid.
Distilled water.

Perhaps there is nothing very serious the matter with this mixture, but it is entirely superfluous. It has no advantage whatever over a Seidlitz powder or the liquor magnesii citratis. It is an unnecessary redundancy in the Pharmacopeia, and is only mentioned here on that account.

Massa Hydrargyri, U. S. P.

Mercury.
Glycyrrhiza.
Althaea.
Glycerin.
Honey of rose.

To attack this old "blue mass" is like another attack on a household god, and one is in danger from the shades of his ancestors, to say nothing of attacks by his professional brethren, when he states that this preparation is not needed and should not be perpetuated. The ridiculousness of the "honey of rose" in a cathartic mass is self-evident, in fact, the modern physician has but to read these ingredients to agree that the mass of mercury should be an ancient joke.

Mistura Rhei et Sodae, U. S. P.

Sodium bicarbonate.
Fluidextract of rhubarb.
Fluidextract of ipecac.
Glycerin.
Spirit of peppermint.
Water.

This preparation is specifically a hospital preparation, and if it was estimated how many times this preparation was used in hospitals in a single day in the United States the impression would be made that it was an essential in curing hospital patients. The hospital graduates then use this preparation more or less frequently throughout their professional life. If we analyze this preparation the following facts should be noted:

1. The object of sodium bicarbonate is to overcome hyperacidity of the stomach, or to increase the alkalinity of the blood. If this preparation is to be given before meals, the sodium bicarbonate would probably soon be neutralized by the hydrochloric acid. If it was given after meals, it would perhaps lengthen the duration of the activity of the starch changes caused by the saliva. The question would be, What action of sodium bicarbonate is desired, and is that indication met in this combination?

2. The rhubarb is of course a laxative. It is a question whether this bad-tasting stuff is needed or advisable three times a day, or is necessary to obtain an action of the bowels.

3. The ipecac is more or less of a gastric stimulant, and if in any amount, would cause nausea and perhaps vomiting. The dose is very small and the action is probably nil. If the dose is a teaspoonful of the preparation, the patient would receive 0.015 c.c., or about ¼ of a minim of ipecac, a perfectly negligible dose; in other words, objectless.

The glycerin is in considerable amount, and the glycerin might act as a laxative, or, if given on an empty stomach, could cause vomiting.

The peppermint is of course a carminative.

The preceding mixture, though more or less harmless, and often apparently of benefit, is so markedly inferior to more scientific medicinal treatment that modern physicians should abandon its use, and it should be eliminated from hospitals as partaking of the nature of a nostrum, and certainly should not be perpetuated in the new Pharmacopeia.

Pilulae Catharticae Compositae, U. S. P.

Compound extract of colocynth.
  Extract of colocynth.
  Purified aloes.
  Cardamom.
  Resin of scammony.
  Soap.
  Alcohol.
Mild mercurous chlorid.
Resin of jalap.
Gamboge.
Diluted alcohol.

To attack this time-honored and much-used cathartic again requires a spartan temperament, but I will wager that not one physician in twenty-five remembers the ingredients when he orders the cathartic pill.

Is it necessary, in order to obtain catharsis, to give this mass of cathartic drugs? Those of us who order one simple drug for such action obtain the same results as those who use this mixture. It certainly will be impossible to eradicate this from the Pharmacopeia, but I would urge every physician who orders this preparation, especially every surgeon, please to note the drugs that he administers. Many of these ancient cathartics should be removed from the Pharmacopeia.

The following two compound powders are unnecessary:

Pulvis Aromaticus, U. S. P.

Cinnamon.
Ginger.
Cardamom.
Nutmeg.

It is rarely advisable to give a lot of spices to a patient who is ill. We are constantly endeavoring to prevent the use of highly seasoned food, and it seems hardly worth while to officialize a combination of these aromatics. If an aromatic is needed, any one may be selected; a mixture would be generally contra-indicated.

Pulvis Cretae Compositus, U. S. P.

Prepared chalk.
Acacia.
Sugar.

If prepared chalk is needed as a sedative for the bowels or as an alkali for the stomach, its combination with sugar is certainly not physiologic. As a general axiom, in all kinds of indigestions sugar is more or less contra-indicated, and certainly it is not advisable to combine it in 50 per cent. strength (as is done in this mixture) in a preparation used as a medicine.

252 York Street.

THE SANITARY RECORD OF THE SECOND DIVISION OF THE U. S. ARMY IN TEXAS

R. B. MILLER, M.D.
Major Medical Corps and Late Sanitary Inspector of the Second Division of the U. S. Army in Texas
WASHINGTON, D. C.

The first regularly organized division of the United States Army called into the field since the Civil War was mobilized at Texas City and Galveston, Tex., March 1, 1913. The troops encamped at Texas City numbered approximately 8,500 and those at Galveston 3,500.

The camp ground at Texas City had been selected in dry weather, when it presented a favorable appearance; but when actually occupied, after the spring rains, it proved to be badly drained. The soil was of clay and impervious, conditions usually considered unfavorable to health. In spite of such ditching as it was practicable to do, after heavy rains the water stood in the tents of both officers and men. By the first of April a better site had been selected and put in condition for occupancy by a comprehensive system of surface drainage, carried out under the supervision of the engineer officers of the division.

The principal sanitary requirements for a camp of this kind are, generally, as follows:

1. An ample supply of pure water.
2. An efficient system of excreta disposal.
3. Protection of the command against typhoid and small-pox by vaccination.
4. The prevention of soil pollution.
5. The prevention of dissemination of disease by flies and mosquitoes.
6. Means of insuring personal cleanliness.
7. Prophylaxis against venereal disease.

The first requisite, a pure water-supply, had been provided before the arrival of the troops by an extension into the camps of the water-supplies of Texas City and Galveston, respectively.

Excreta disposal is provided for in the Texas City camp by the use of pits, one for each company, from 5 to 7 feet deep, covered by box seats with ten holes in each, provided with self-closing lids and constructed so as to be fly-proof. The boxes are placed over the pits and the contact with the ground made fly-proof by banking with soft earth or sand. Once daily the boxes are turned over and the pits burned out, 10 pounds of hay and 1 gallon of crude oil being used for this purpose. Careful daily inspection by sanitary officers is necessary to insure the latrines being kept actually fly-proof. The latrine seats are scrubbed daily. When the pits become filled within two feet of the top they are covered over and new ones dug.

Every officer and man, as well as all civilian employees, not already protected, was required to be vaccinated against small-pox and typhoid fever.

Soil pollution is prevented by disposing of all solid and liquid garbage in improvised incinerators constructed at each kitchen by soldier labor. All organic waste is in this way disposed of as it occurs and no accumulation is permitted. Picket lines are kept carefully policed and all manure is hauled some distance from camp and burned.

Flies are prevented from breeding, so far as possible, by the careful disposition of manure, garbage and other organic waste as outlined and by preventing their access to the latrines. A number of flies come into camp from the neighboring town and others are bred on the surrounding prairie where the animals are grazed. To destroy these flies each company has provided itself with several large home-made fly-traps, which are placed outside the kitchen doors and in other places where flies congregate. These traps are an unqualified success. All kitchens and mess-halls are screened. The small number of flies in camp has been a matter of general comment.

Mosquito breeding is partially controlled by draining and oiling. We have also been assisted in our mosquito campaign by an unusually dry summer. The country surrounding the camp at Texas City is, however, so low and flat that the breeding of mosquitoes cannot be entirely controlled by a reasonable expenditure of labor and money. Officers and men are therefore required to sleep under the mosquito-bars, and all cases of fever, of whatever nature, are immediately placed in screened wards in the field hospital.

The men have access to a salt-water beach for bathing and in addition fresh-water showers are provided.

Tents are placed at convenient points, with attendants constantly on duty, in which men who have been exposed to venereal disease are, on their return to camp, required to take prophylactic treatment. This consists of irrigating the anterior urethra with a 2 per cent. protargol solution and anointing the penis with a 30 per cent. calomel ointment.

The results, as shown by the sick-rate, have been better than in any other camp the army has ever had. For the five months from March 1 to July 31, there has not been a single case of typhoid or paratyphoid fever among the personnel of the camp. Malaria and dysentery have been practically absent and, with the exception of a short epidemic in one brigade, after an absence of a week from its regular camp, there has been comparatively little diarrhea.

The constantly non-effective rate from all causes has been 1.14 per cent., of which 0.20 per cent. was due to injury, making the average rate from sickness 0.94 per cent. With a constant mean strength of 11,373 men, there have been, during the five months the division has been in camp, sixteen deaths, ten of which were due to injury and six to disease.

In my opinion these improved results may be attributed to the following causes: typhoid prophylaxis, the systematizing of sanitary effort in the army as inaugurated at the San Antonio camp two years ago, the increasing knowledge of officers and men of the benefits to be derived from sanitary measures and their consequent cooperation with the medical officers, the thorough support given the sanitary department by the commanding general and the zeal and efficiency of the medical officers.

With certain modifications in detail the sanitary measures herein outlined could be quite largely employed by the civil population in small towns and rural communities.

A NEOSALVARSAN FATALITY

M. E. HAGERTY, M.D.
ST. LOUIS

A number of untoward accidents have followed the use of salvarsan and neosalvarsan since its introduction as a therapeutic agent. Editorial comment in The Journal[1] called attention to the dangers of the use of this remedy. The following case, which is hereby reported, is perhaps one of the most striking examples of what may happen following the injection of salvarsan, even under the most favorable circumstances, that is, in one who was not suffering from any serious organic lesions; and it is especially significant owing to its correspondence with a report of Wilhelm Wechselmann[2] and also that of Homer F. Swift,[3] of three almost identical cases.

History.—H. C., man, aged 29, with a history of primary chancre about five years before, had mercury and potassium iodid treatment for over two years. For past two years he had taken no treatment. Present treatment began on account of mental attitude of patient rather than from any objective symptoms.

Ophthalmic examination by Dr. W. E. Klokke showed spots before eyes and a blurring of vision. Vision, right eye, was 6/7.5, left eye 6/10: no improvement with lenses. Cornea and lens clear; eye-ground showed arteries small, some pallor and beginning dilatation of retinal veins. Left eye showed considerable cloudiness of retina; no contra-indication of salvarsan. Physical examination showed patient extremely well developed, heart and lungs normal, slight enlargement of liver and spleen and slight amount of arteriosclerosis. Urinalysis was negative to albumin and sugar. Specific gravity 1.022, reaction slightly acid.

Treatment.—Feb. 26, 1913, the patient received the first injection of neosalvarsan, 0.6 gm. intravenously. This was prepared in freshly distilled crystal water. The patient had no ill effects from this injection, not even nausea, headache, chill or other disturbances that frequently follow such an injection. He was seen every day for several days. The first twenty-four hours urine showed a trace of albumin, and the specific gravity was 1.025. The urine was normal after twenty-four hours. Three weeks later he was given 10 drops of saturated solution of potassium iodid three times daily for a period of two weeks. After one week without treatment, six weeks after first injection, eye examination showed decided improvement. Vision, right eye, 6/6, left eye 6/6. Ophthalmoscope showed retinal vessels of the right eye normal. Arteries of the left eye were small and the veins dilated, but cloudiness had practically disappeared; pallor was still present in areas. The heart and lungs were normal, liver and spleen slightly enlarged, and kidneys normal.

The second dose, 0.6 gm., same as the first, of neosalvarsan was given intravenously. Following this injection the patient rested about fifteen minutes, showing no ill effects whatever. He then started for his hotel, which was one-half block distant. After being gone about ten minutes he returned and collapsed in reception-room, just as he entered. His face was flushed, muscles tense, and he fell on the floor in a convulsive state. Respiration was difficult, and there was some bloody froth at the nose. Usual remedies were given, including 1/30 grain strychnin hypodermically, followed shortly by 1/150 grain atropin and ¼ grain morphin. Muscles relaxed, breathing became easier, and consciousness was regained. The patient was placed on a couch and a little whisky and aromatic spirits of ammonia were given. Cyanosis cleared up, pulse came down fom 138 to 100; ambulance was called, patient walked to this unassisted. He was taken to the hospital and a special nurse put in charge. Heat was applied, and from that time he seemed to be all right; he complained of being tired, and rested for about five hours, then suddenly, without premonitory symptoms, breathing and heart action seemed to stop and the patient died, there being no final convulsions.

This is the first fatality occurring to me in over six hundred injections of salvarsan, but is the seventh death to my knowledge resulting from salvarsan in St. Louis since its introduction as a therapeutic agent.

The pathologic report of Dr. R. L. Thompson follows:

PATHOLOGIC REPORT, R. L. THOMPSON, M.D., ST. LOUIS

Body of well-developed and well-nourished male. Slight abrasion over bridge of nose. Pupils 4 mm. in diameter. Some froth exudes from mouth and nostrils; the latter being blood-tinged. Teeth tightly set. Lividity extreme over dependent portions of body and also well-marked on sides of chest, neck and head.

Abdominal cavity: Normal save for about 30 c.c. of slightly blood-tinged fluid in right hypochondrium. Peritoneum, normal. The superficial vessels of the stomach and duodenum show moderate congestion.

Pleural cavities: Normal.

Lungs: Voluminous, fill cavities; grayish-pink with usual carbon tracery. Pleura smooth. Bronchi intensely reddened and contain stiff slightly blood-stained foam. On section both lungs exhibit the most intense edema and congestion; blood and frothy fluid flow freely on slight pressure. The right lower lobe is especially firm and one of the medium-sized vessels is occluded by a red thrombus at the end of which is a small area of infarction about 2 cm. in diameter. There is more or less hemorrhage into the lung, surrounding this area.

Pericardial cavity: This contains about 20 c.c. clear straw-colored fluid.

Heart: The right side of the heart is dilated and filled with cruor clot. Heart muscle firm and dark red. Valves normal.

Arteries: Moderate fatty degeneration of intima of aorta most marked just above the aortic valve.

Stomach: Normal size. Contains about a pint of brownish-colored fluid of no particular odor. The mucosa is intensely reddened especially in the upper half and along the lesser curvature. This reddening appears as numerous tiny close-set ecchymotic dots. In addition a considerable amount of tenacious blood-stained mucus adheres to the stomach wall.

Intestines: The intestinal mucosa is practically normal, save for a slight congestion of the duodenum.

Pancreas: Congestion.

Liver: Slightly enlarged; surface smooth; on section dark red; blood flows freely from cut vessels; consistence slightly diminished.

Kidneys: Normal size; dark red. Capsule strips easily, leaving smooth surface. On section show intense congestion of both cortex and medulla.

Spleen: Somewhat larger than normal. Soft. On section dark red; pulp is semifluid in consistence.

Genitalia: Normal.

Scalp and skull: Normal.

Brain: Sinuses filled with dark fluid blood. Vessels of pia deeply injected; dark red; fine stellate markings of congestion, particularly well marked over occipital region. There is very little cerebrospinal fluid. The brain is heavy

---

[1] The Present Position of Salvarsan in Syphilis, editorial, The Journal A. M. A., Oct. 5, 1912, p. 1295.

[2] Wechselmann, Wilhelm: Urolog. and Cutan. Rev., Berlin, March, 1913, p. 1.

[3] Swift, Homer F.: Anaphylaxis to Salvarsan, The Journal A. M. A., Oct. 5, 1912, p. 1236.

and shows on section edema of the substance and congestion; puncta cruenta show marked spreading. The basal ganglia are quite dark in color, as is also the cerebellum, and blood flows on section of vessels of any size. The floors of the lateral ventricles and fourth ventricle show granular ependymitis. Pons and medulla normal. Spinal cord normal at cervical segment.

Thyroid, adrenals and pituitary: These all show intense congestion.

Anatomic Diagnosis.—Edema and congestion of lungs; small infarct, right lower lobe; acute gastritis; edema and congestion of brain; acute congestion of all parenchymatous organs and ductless glands.

Cause of death: Acute arsenic poisoning.

Thanks are due Dr. Louis R. Padberg, Coroner of St. Louis, for permission to publish the post-mortem report in this case.

THE EMPLOYMENT OF CARMIN IN GASTRO-INTESTINAL DIAGNOSIS *

SEYMOUR BASCH, M.D.
Adjunct Attending Physician, Lebanon Hospital
NEW YORK

Notwithstanding its comparatively long employment in gastro-intestinal diagnosis, the utilization of carmin for this purpose appears to be but little known and understood by the profession in general.

The employment of carmin in gastro-intestinal diagnosis is not new. As far back as 1874, Grützner[1] devised his colorimetric method for pepsin determination by carmin-stained fibrin, a method which has now merely a historical interest. For use in diagnosis, carmin may be taken in capsules, dry on the tongue, or mixed with water or food. When pure, it is absolutely harmless in moderate amounts. I have repeatedly administered as much as half a teaspoonful to patients and noted no bad effects. Schmidt[2] mentions that it may prove slightly irritating to the bowels, but this has not been my experience. Taken by mouth, the drug stains the feces, with which it becomes intimately mixed, a brick-red. The intensity and extent of this color is roughly proportionate to the amount of carmin taken, the rapidity of its passage through the gastro-intestinal canal and the consistency of the bowel contents. Carmin is probably not absorbed, as it imparts no stain to the urine, sweat, saliva, tears or visible tissues.

Carmin is used in gastro-intestinal diagnosis:

1. To mark off or differentiate the stools of one diet from those of another.
2. To estimate the rapidity of gastro-intestinal motility.

Following the suggestion of Adolf Schmidt[3], I have since 1899 made use of carmin in stool observations.[4] I find 5 grains a sufficient dose for ordinary purposes. This amount usually secures two distinctly red movements. The second, however, may have only a faint tinge in parts, or may contain but a few crystals of carmin. Large doses should not be given; they only prolong the red effect on the dejecta. I have the patient take the drug mixed with a teaspoonful of water.

The second-named purpose, that of estimating the rapidity of gastro-intestinal motility, has been described by Adolf Schmidt[2] and Spivak[5]. We have no means of determining the rapidity of the individual intestinal segments excepting by the Roentgen rays. When it is not possible to employ the Roentgen rays, we can gain an idea of the rapidity of the passage of food through the entire bowel in one of two ways. We can either introduce a carmin solution directly into the duodenum and time its exact exit per anum, or we can let the patient swallow the drug and, having estimated the motility of the stomach, deduct that time from the total time required for the first appearance of the red stools.

It may also be mentioned that carmin has been used in experimental demonstration in animals of the *Schichtung* or layer formation of the gastric contents during active digestion.

I wish to suggest the following additional uses of carmin in diagnosis:

1. To determine whether the alimentary canal is patent or obstructed and whether an existing obstruction is temporary or permanent.
2. To detect a fistulous communication with the alimentary canal.
3. To ascertain in a very simple manner if a duodenal tube is within the duodenum or the stomach.
4. To aid in the diagnosis of esophageal dilatation and diverticulum.

I have employed carmin repeatedly for the first three purposes named and can well recommend it for simplicity of use and accuracy of conclusions.

In the absence of vomiting, failure to reappear at all can be due only to complete obstruction (acute or chronic) somewhere in the digestive tract.

I would particularly suggest its employment in suspected infantile or so-called congenital pyloric stenosis. It has been shown by Nobécourt and Merklin[6] that in normal infants up to 3 months of age, red stools appear in from three to nine hours after the administration of 1 grain of carmin. Hence the complete absence of carmin excretion in these little patients would be indicative of a definite anatomic obstruction somewhere within the alimentary canal.

When the Roentgen-ray or instrumental methods cannot be used, the administration of a few grains of carmin, with a little water or nourishment, brings no added danger or inconvenience to the patient and may throw a flood of light on the situation.

In those cases of intestinal obstruction in which fecal contents still pass out, but come from points below the site of the obstruction, the special value of the carmin test is seen. If one of these patients be given carmin and the stools continue to appear unstained by the dye, the fact of a complete obstruction is absolutely proved.

The value of carmin in the detection of externally communicating fistulas is well illustrated by the following case, in which the patient was under my care in 1900:

Mr. A. C., aged 43, gave a history of pain in the abdomen, constipation and occasional blood mixed with the stools. The urine was turbid and there were pains before micturition. Physical examination was negative, but repeated examination of the freshly voided urine gave the following; Acid reaction, very turbid appearance, but no special odor. The microscopic examination of the sediment showed erythrocytes, pus cells and many transversely striated muscle fibers.

The last-named finding could only result from an intravesicular rhabdomyoma or from a fistulous communication between the bladder and bowel. To clear up the diagnosis, the patient was placed on a meat-free diet and given 5 grains of carmin. Soon he passed a very red urine that contained carmin crystals, but no longer any muscle fibers. This proved conclusively the absence of a rhabdomyoma and the existence of an intravesicular fistula. A positive diagnosis of a malignant intestinal tumor with a fistulous communication into the bladder was made. The case came to operation and proved to be an inoperable lymphosarcoma of the ileum adherent to and rupturing the bladder. A later post-mortem examination confirmed all the findings given.

---

* Read at the Sixteenth Annual Meeting of the American Gastro-Enterological Association at Washington, D. C., May, 1913.

[1] Grützner: Arch. f. d. ges. Physiol., 1874, viii, 452.

[2] Schmidt, Adolf: Die Funktionsprüfung des Darms, etc., Ed. 2, Wiesbaden, 1908.

[3] Schmidt, Adolf: Deutsch. Arch. f. klin. Med., 1898, lxi, 548.

[4] Basch, Seymour: Ztschr. f. klin. Med., 1899, xxxvii, Nos. 5 and 6

[5] Spivak: Denver Med. Times, November, 1910.

[6] Nobécourt and Merklin: Bull. de la Société de Pediatrie, Jan. 12, 1910, No. 1.

In duodenal intubation and feeding it is important to know whether the distal end of the tube lies within the duodenum or stomach. It is not always possible to obtain secretion by suction, and when the secretion is of a golden yellow color and gives a strong Congo reaction, it may come from either the stomach or the first portion of the duodenum. The question can readily be settled by allowing the patient to drink a small amount of clear, fresh, watery solution of carmin and, attaching the feeding syringe, at once making suction. If the distal end of the tube is within the stomach, carmin solution will be withdrawn; if in the duodenum, no fluid at all, or characteristic bile-colored duodenal fluid, will appear.

Although roentgenoscopy is by far the best method for the diagnosis and differential diagnosis of esophageal dilatation and diverticulum, the suggestion is made that carmin be used in this connection in the same manner as some of the more or less distinctly colored food fluids (black coffee, milk, etc.), heretofore employed for this purpose. It has the special advantages of being bland, acceptable to all palates and of not changing its physical or chemical properties.

CONCLUSION

I would state that in the carmin test we have a simple, harmless, reliable and convenient means for the demarcation of stools, the estimation of gastro-intestinal motility and patency, for the detection of fistulous communications of the alimentary canal with the exterior or with other hollow organs, for the location of the distal end of a duodenal tube and to aid in the differentiation between esophageal diverticulum and dilatation.

With the more universal employment of this method, no doubt further fields of usefulness will suggest themselves.

142 West Eighty-Fifth Street.

A CASE OF BRAIN SYPHILIS

Nathan B. Eddy, M.D., New York

The course of the case of brain syphilis previously reported by me[1] has been interesting and for correctness a further report is necessary.

Previous History.—The previous report stated that the patient, F. M., aged 34, married, a laborer, having a positive syphilitic history, was admitted to the hospital Dec. 28, 1912, in coma with convulsions and a transient left-sided hemiplegia. He had a strongly positive Wassermann and was treated by repeated injections of salvarsan, neosalvarsan and mercury salicylate. For the time being his recovery was complete and on Feb. 8, 1913, he was discharged from the hospital, apparently in perfect health. During February and the first part of March the patient returned weekly for intramuscular injections of mercury salicylate, one grain being injected each time. About the first of March he went to work in an iron foundry.

Second Attack.—April 14, 1913, while at work, he suddenly fell to the ground in a general convulsion, which was followed by deep coma, and at 9:40 a. m. of the same day he was readmitted to the hospital. His condition was much the same as on his previous admission except that no sign of paralysis was present. He could not be roused. The pupils were equal and regular, though small and inactive. The pulse was full but not rapid and without high tension. All reflexes were diminished, those on the right side slightly more than those on the left. Otherwise physical examination was negative.

Because of the previous history the patient was given neosalvarsan, 0.9 gm., intramuscularly, the same afternoon. The blood and spinal fluid taken the same day were examined and both gave a strong Wassermann reaction. As before, recovery was prompt and continuous so that the patient was rational and comfortable, April 24, and was up and about, May 4.

The injection of neosalvarsan, 0.9 gm., was repeated, April 28, and the patient received the weekly injections of mercury salicylate as well as potassium iodid up to 90 grains three times a day. May 9, the patient felt so well that he insisted on going home, promising to return every week for injections. He was seen but once about two weeks later. At that time he was at work, though he seemed restless and rather silly.

Third Attack.—June 25, 1913, following excessive alcoholic indulgence, the patient was again seized with convulsions and was brought to the hospital at 12:30 p. m. He had a severe general convulsion shortly after admission. He was in coma with no sign of paralysis, and as before the coma cleared up rapidly, leaving him violent and noisy.

He was given salvarsan, 0.3 gm., intravenously, July 3, with only slight change in his mental condition, and mercury salicylate, ½ grain, intramuscularly, July 5, 9, 12, 16, 19 and 23. A Wassermann reaction, July 7, was strongly positive and a Wassermann reaction on the spinal fluid the next day was equally positive. A cell-count of the spinal fluid at this time showed 105 cells per cubic millimeter, the majority of which were epithelial cells with very few polynuclears. The fluid was perfectly clear and under pressure. The condition of the patient resembled alcoholic delirium, and varied from day to day from silly docility to noisy violence, but at no time was he rational. He had one more convulsion at 5 p. m., June 30.

Repeated examinations of the urine were entirely negative in result, showing no apparent effect on the kidneys of the many injections of salvarsan and mercury. His temperature was generally flat normal with an occasional rise to 99 or 100 F.

July 23 his temperature rose abruptly to 104 F. and his condition became much worse. He was drowsy and stupid and took fluids with difficulty. July 24 his temperature rose to 106 F. There were neither convulsions nor signs of paralysis. He became rapidly weaker and died in coma the next day, July 25, at 11:30 a. m. Necropsy was refused.

This case brings out the prompt response of a patient to strong antisyphilitic treatment in an undoubted case of brain syphilis, but the equally prompt relapse, increasing in severity following each interruption of treatment. At the same time I think there is no doubt that the patient's life was prolonged six months, a part of which time he was able to work, and much more might have been done had it been possible to keep him constantly under treatment.

992 Tiffany Street.

A METHOD FOR ASEPTIC URETERAL CATHETERIZATION

W. P. Willard, M.D., San Francisco
Instructor in Urology, University of California

The sterilizing and aseptic handling of ureteral catheters has always been more or less of a problem to the cystoscopist. The method that I here present is one that I have used lately and have found simple and efficient.

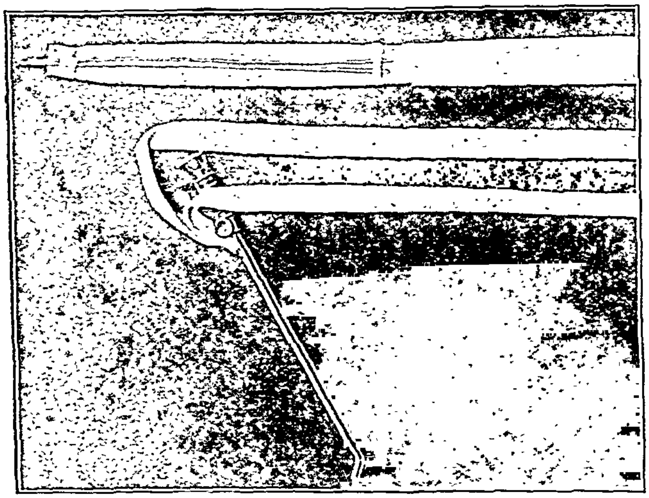
The boiling or immersion of the catheters in various solutions renders them soft and difficult to handle. Formaldehyd as it is generally used is not reliable. With a sterile catheter that is not protected it is almost impossible to avoid contamination of the long free portion. It is also very difficult for the cystoscopist to keep his hands clean, as the connection and switch cannot be sterilized and the handling of the catheter with forceps or gauze is difficult.

---

[1] Eddy, Nathan B.: Recovery in Brain Syphilis after the Use of Salvarsan, The Journal A. M. A., April 26, 1913, p. 1296.

I have bags made of muslin 2 cm. wide and about 75 cm. long. It is important to have them wide enough so that the bags fold up readily as the catheter is pushed forward. The catheter containing the wire is placed in the bag. The bag is then wrapped in paraffin paper and fastened in several places with adhesive strips. If a piece of wood is fastened on the outside of the paper at the tip end of the catheter, bending of the tip is prevented. It is well to mark on the paper the size and style of the catheter. The package is now placed in an autoclave for twenty minutes with a pressure of 8 or 10 pounds. A number of catheters can be sterilized at the same time and can be kept for an indefinite period without injuring them.

When the cystoscopist is ready to use a catheter the paper is torn off and the wire is removed. The tip is worked out of the bag and introduced into the cystoscope and pushed forward by holding the catheter through the bag. The instrument is introduced and the catheter manipulated through the bag. When the catheter is in the desired position the bag can be slipped off and the instrument removed.



A device for aseptic ureteral catheterization.

After a catheter is used it should be washed inside and outside and dried by forcing air through it and hanging it near a radiator or in the sun.

If the bag becomes wet during catheterization the wet cloth is apt to adhere to the catheter. The washers on the cystoscope should be tight. Care must also be used in handling the cystoscope containing the catheters to prevent the bags slipping down on the catheters. To keep the bag in place an elastic band can be placed around the bag after it has been pushed up on the catheter tube.

177 Post Street.

A Bouquet for the Doctor.—There is no other profession, unless we except the service of the church, which throughout its history has dispensed so much practical charity and given so much gratuitous service to the cause of humanity. There is no other that has maintained a higher code of ethics or one more scrupulously adhered to. There is no other that places so great and arduous responsibilities on its practitioners. There is scarcely another that requires such exacting training or such careful and continuous amplification of scientific equipment. The medical man who conscientiously meets the many and exacting requirements of his vocation has little time or opportunity for an avocation.—Corwin and Mayo, in *The Outlook*.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ACNE VACCINE (See N. N. R., 1913, p. 221).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Acne Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 50,000,000 killed Bacillus Acne.

BACILLUS COLI VACCINE (See N. N. R, 1913, p. 221).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Coli-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Bacillus Coli Communis.

FRIEDLANDER VACCINE (See N. N. R., 1913, p. 222).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Friedlander-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Friedlander bacilli.

GONOCOCCUS VACCINE (See N. N. R., 1913, p. 223).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Gonococcus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Gonococci.

PNEUMOCOCCUS VACCINE (See N. N. R., 1913, p. 224).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Pneumo-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 100,000,000 killed Pneumococci.

MIXED VACCINES (See N. N. R., 1913, p. 224).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Acne-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 500,000,000 Staphylococci, and 50,000,000 Acne Bacilli. Total 550,000,000 killed bacteria.

STAPHYLOCOCCUS VACCINES (See N. N. R., 1913, p. 225).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Staphylo-Albus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Staphylococcus Albus.

Staphylo-Aureus-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Staphylococcus Aureus.

Staphylo-Bacterins (Human) Albus—Aureus—Citreus.—Marketed in packages of six ampules, each containing 200,000,000 killed bacteria.

STREPTOCOCCUS VACCINES (See N. N. R., 1913, p. 226).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Strepto-Bacterins (Human).—Marketed in packages of six ampules, each containing 200,000,000 killed bacteria.

TYPHOID VACCINE (See N. N. R., 1913, p. 227).

The Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Typho-Bacterin Polyvalent.—Marketed in packages of six ampules, each containing 200,000,000 killed Typhoid Bacilli.

Typhoid Prophylactic.—Marketed in packages of three ampules, each containing respectively 500,000,000, 1,000,000,000 and 1,000,000,000 killed bacteria.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, OCTOBER 4, 1913

THE EFFECT OF FOOD ON METABOLISM

Under ordinary conditions of life, and in the absence of modifying pathologic factors like fever, metabolism may be increased by two prominent causes. One of these is muscular activity, which is also commonly referred to by the terms "work" and "exercise." The other factor is the ingestion of food. Extremes of external temperature are, of course, also not without influence on metabolism; but in every-day experience they are modified or counteracted by numerous environmental agencies, such as variations in clothing, etc., so that this element in the forces which play on the energy transformations in our bodies will here be left out of consideration.

The heightened metabolism following the intake of food is not characteristic of any group of foodstuffs in particular, but is evoked by proteins, fats and carbohydrates, though in widely different degrees. It is greatest in the case of proteins. Why muscular work should stimulate the metabolic activities is evident: the problem is merely that of the transformation of energy from one form into another—of converting body fuel into muscular contractions. But why the mere ingestion of food in a person at complete rest should excite a conversion of energy beyond what the basal requirement of the resting individual demands has been a puzzling question for physiologists. There have been two prominent "schools" of opinion. Zuntz and his co-workers assume that the increase in metabolism after eating is mainly due to the mechanical processes of digestion, including the work of peristalsis, segmentation, absorption and glandular activity. The eminent Berlin physiologist Rubner, on the other hand, attributes the increased conversion of energy to what he has termed the "specific dynamic action" of the foodstuffs; that is, they exert an obscure influence whereby part of the energy appears as free heat and does not benefit the cells. On the one theory, as we see, the increase in metabolism is charged chiefly to mechanical causes; on the other, it is mainly attributed to chemical processes.

We have touched on these questions before, and it seems worth while to recur to them whenever fresh evidence bearing on the controversy is presented, for everything pertaining to the theory of metabolism sooner or later finds its application in the experiences and practices of nutrition. Drs. Benedict and Pratt[1] of Boston, have followed the ingenious plan of determining how the metabolism is affected by interference with some of the alimentary factors held by the advocates to be so important for the exhibition of the increased metabolism following the ingestion of food. They have made a study of the metabolic changes entailed by feeding meat to dogs without (external) pancreatic secretion. When the latter is diverted from the digestive tract by surgical interference, for instance, by ligation of the pancreatic ducts, the power to digest and absorb proteins is well known to be greatly impaired. It was evident, therefore, that under these circumstances there would be a maximum work of digestion so far as peristalsis and segmentation are concerned, and a decreased absorption of material from the foodstuffs to be carried by the blood to the cells, there, according to Rubner's views, in part to produce free unutilized heat. It was believed, therefore, that a study of the metabolism of these animals to determine the effect of ingesting meat would throw light on the general question of the cause of the increased metabolism following the ingestion of food.

Despite the mechanical work required to pass the enormous masses of unabsorbed food through the intestinal tract, the postprandial increase in metabolism in the experimental animals was decidedly below rather than above what is found under the same conditions in normal animals. This outcome does not support the hypothesis of "digestive work" as a cause of heightened metabolism. The results show that there is no large energy transformation incidental to segmentation, peristalsis, glandular activity of stomach, liver and intestine, and the movements of the unabsorbed food through the intestinal tract. The attempt to explain the increased metabolism following the ingestion of food by the theory that the increase is a consequence of such movements, is, therefore, not justifiable. Thus the theory of a special action of the products of digestion on the metabolism of the cells is gaining ground through the accumulation of evidence.

HORSES, WOMEN AND CHILDREN

Last Decoration Day, in addition to the customary parades, there were parades of workhorses in which many of the horses wore at their heads the blue, red and yellow ribbons bestowed in recognition of the care and merciful treatment given them by their owners. The latter parades also typified an emancipation—that of the defenseless horse from the overloading, the lashing, the cursing and the rough treatment resulting in sores and bleeding mouths prevalent not many years ago. The change has been brought about by a propaganda against cruelty to horses which has been so effective that now not only are drivers humane in their treatment of these faithful servants, but a genuine pride is taken by owners in keeping their horses sleek-coated, with neatly combed manes and tails, superbly harnessed to handsome trucks and, above all, adequately nourished.

---

[1] Benedict, F. J., and Pratt, J. H.: The Metabolism after Meat Feeding of Dogs in Which the Pancreatic External Secretion Was Absent, Jour. Biol. Chem., 1913, xv, 1.

Formerly drivers said that they must work their horses to the limit of every ounce of horse-power or that competitors would distance them by doing so. The propaganda which has been carried on for a decade or more has demonstrated that a mercifully treated horse is an economic advantage, because, though more work may be obtained for a brief space from a hard-driven horse, his earlier death ends surely in business loss. So now there is a wholesome tendency among those who own and use workhorses to discourage cruelty. It seems as though the tragedy of the misused horse were passing into history.

Employers of women and children in factory and sweat-shop are beginning to see the same light. Contractors have explained that they must drive thin-blooded, hollow-eyed, consumptive women to death, and employ children not much more than weaned, because of the fierce and utterly merciless competition between manufacturers; but the idea is gradually gaining ground that such doings are an economic mistake and altogether too expensive to indulge in. Besides, the growing social sense of the degradation of those who blood-sweat women and little children causes ostracism, which is hurtful to the pride. The propaganda against these things, which is carried on by such enlightening and discriminating agencies as the American Consumers' League, is doing much to force the public to realize too that "the poverty of Lazarus makes itself felt in the house of Dives"—through infection-ridden garments conveyed from the sweat-shop,[1] and from the bargain counter, to the family of the purchaser; and of course that kind of thing does not pay at all. Humanitarians are seeking and obtaining legislation in behalf of the human weakling. So, as the slave has been emancipated, and to a large extent, the horse, it really seems that the tragedy of the defenseless woman and child will, within a few years, also pass into history.

CHEMICAL SIMILARITIES AND BIOLOGIC DIFFERENCES

The recent trend of biologic investigation is tending, in a way, to upset many of the older notions regarding the uniform make-up of the animal tissues. There was a time when the chemical components of blood, for example, were assumed to be essentially alike in all related forms. Blood proteins, muscle proteins and, indeed, tissue proteins in general were believed to have a close similarity which expressed itself in comparable solubilities and physical properties. Thus it came about that such distinctive terms as "albumin" and "globulin" were introduced to designate variations in the behavior of the proteins toward different solvents; whereas there seemed to be no impelling reason to doubt that, broadly speaking, the globulins or albumins of different sources resemble each other closely. Indeed, the belief began to assert itself that the proteins of plant sources also could be put into the same category with the albuminous products of animal origin in so far as they exhibited comparable solubilities.

It has remained for the modern development of what is called immunology to bring out forcibly the incisive fact of marked physiologic differences between proteins of apparently similar properties, using the latter term in its common acceptance of behavior to ordinary reagent tests. The more subtle biologic examination has demonstrated the remarkable specificity of all the individual products of similar or related character. When chemical analysis has not been able to point to distinguishing characteristics, even when it has been carried to the refinement of technic represented by the most up-to-date methods of Emil Fischer and his followers, biologic tests in the field of immunity reactions—the phenomena of the precipitins, anaphylaxis, etc.—have still been able to emphasize the undoubted distinctive features of even such apparently comparable products as the chemically similar proteins of the blood of two animal species.

Even along distinctly chemical lines, however, dissimilarities are beginning to crop out where they were formerly scarcely expected. By way of illustration we may refer to recent investigations of the protein keratin, which forms the basis of hair and similar tegumentary substances. Data collected by Buchtala[1] show that human hair is distinguished among the various keratinous structures by its unusually high content of cystin-yielding components. Sulphur derivatives have long been described as abundant in hair and horny structures; but it is now accurately demonstrated that in addition to the usual amino-acids obtained by the decomposition of proteins in general, human hair may yield nearly 12 per cent. of the sulphur-containing derivative cystin. This unusual proportion differentiates it chemically from all other animal hair and also from the closely related wool of the sheep.

Such findings recall the contention of one of the foremost students of the chemistry of the proteins, T. B. Osborne,[2] that structural differences exist between very similar proteins of different origin; and it is interesting to note that chemically identical proteins apparently do not occur in animals or plants of different species, unless they are biologically very closely related. In this respect the proteins are in marked contrast to the other constituents of plants and animals, for not only do identically the same sugars and fats occur in many species of plants and animals, but many of these

---

[1] Lazarus and Dives, Current Comment, The Journal A. M. A., May 31, 1913, p. 1712.

---

[1] Buchtala, H.: Ueber das Keratin der weissen Menschenhaare, Ztschr. f. physiol. Chem., 1913, lxxxv, 246.

[2] Osborne, T. B.: Chemistry of the Proteins, Harvey Lectures for 1910-1911, Philadelphia, 1911, p. 72.

are common to both forms of life. It thus appears that the chemical constitution of the proteins is closely connected with the biologic relations of the forms of life which produce them, and that the morphologic differences between species find their counterpart in the protein constituents of their tissues.

THE SENSES OF TASTE AND SMELL

If asked to make a distinction between the sense of taste and that of smell, most of us would probably say that besides differences in the organs with which these manifestations are concerned, the stimuli which call their respective sensations into existence are unlike. It has generally been assumed and taught that taste is excited by substances in the state of solution and that smell is called forth by products in a gaseous or vaporous condition. This view, however, has not remained unchallenged. It has been contended by a number of physiologists that solutions may act as stimuli for the olfactory surfaces, and some have gone so far as to assert that in normal functioning of the sense of smell in man, the odorous particles are caught on the moist olfactory surfaces and dissolved before they can act on the nerve terminals.

The problem of these possible distinctions in the two senses has been taken up in an experimental way by G. H. Parker and Miss Stabler.[1] Selecting as a stimulus a substance—ethyl alcohol—which has both a characteristic odor and a well-marked taste, they have made some comparisons which lead them to conclude that in vertebrates the stimulus for smell is a substance dissolved in the fluids that bathe the olfactory surface, and that in this respect smell and taste are similar. The difficulty in imitating a normal stimulation of the olfactory organs by solutions experimentally introduced into the nose is due, in the opinion of Parker and Stabler, to the inability of the investigator to reproduce the olfactory solvent. This material, the slimy covering of the olfactory surface, is very different from water or even warmed physiologic salt solution. Hence it is not surprising that odorous substances dissolved in these mediums should not act as normal stimuli for the olfactory surfaces. Were it possible to imitate closely the olfactory solvent there might be no difficulty in stimulating the olfactory organs with solutions made up in this solvent.

Both smell and taste are, then, stimulated by solutions, but water introduced into the human nose will cause a temporary loss of the power of smell. Hence, the olfactory organs are not appropriately stimulated by ordinary aqueous solutions. Besides the possible different chemical nature of the stimuli, that for the sense of taste is a relatively strong solution, that for smell a relatively weak one. The bearing of these facts has been summarized by saying that we smell enormously attenuated solutions and taste only relatively strong ones. Taste is used in determining the presence of comparatively large amounts of substance, smell for only the most minute quantities. Hence, taste is inoperative except when the source is very near at hand, usually in the mouth; whereas smell may be active when the source is far distant, the dilution experienced by the stimulating substance in its spread not having been sufficient to bring it below the concentration necessary for stimulation.

Current Comment

THE CALL OF THE EMPTY STOMACH

If it be true, as was suggested in our recent discussion of the contractions of the stomach attending the sensation of hunger,[1] that the actual stimulus to these is inherent in some local gastric mechanism rather than in general systemic conditions, it might be expected that the hunger contractions would appear as soon as the stomach is empty of food or other substances capable of stimulating the mucosa. It is a physiologically advantageous arrangement whereby the inhibition of the hunger contractions by mechanical and chemical stimulation of the gastric membrane prevents the appearance of these contractions during the period of gastric digestion. It would not be strange, however, if psychic and other factors, such as habit, fatigue, etc., interfered in daily life with the expected manifestation of hunger immediately after the emptying of the stomach. As a matter of fact, most of us probably do not always experience the sensation of hunger at every period when the stomach is empty. There are too many distracting or inhibitory agencies playing on us. Carlson[2] has pointed out that we should look for the closest parallelism between the gastric hunger contractions and the absence of stimulation of the gastric mucosa in infants and young children, that is, before cerebral (and possibly gastric) habits relative to feeding have become established. He has noted precisely what might be anticipated under such uncomplicated conditions. Other things being equal, the more food put into the stomach, the longer the time required for the completion of gastric digestion. An infant given only four ounces of food exhibited phenomena of hunger, that is, called for more, after about two hours. When seven or eight ounces of the same food was furnished, the call for food was delayed for three or four hours. If the child was given a limited amount of food at bedtime it waked up much earlier than when the feeding was carried to the point of satiety. Carlson cites these observations as evidence of the close parallelism between the time of the emptying of the stomach and the appearance of the hunger contractions which initiate the sensation. He suggests that the more frequent calls for food during the day are obviously due to the fact that the gastric hunger contractions must reach a certain degree of intensity before they cause the soundly sleeping infant to wake up. Perhaps, after all, the sensation of hunger is a better guide to gastric conditions than has been admitted in the past, so that we ought to cultivate a familiarity with it more intelligently than is the custom among the majority of persons.

---

[1] Parker, G. H., and Stabler, Eleanor M.: Certain Distinctions Between Taste and Smell, Am. Jour. Physiol., 1913, xxxii, 230.

[1] The Gastric Movements in Hunger, editorial, The Journal A. M. A., Sept. 27, 1913, p. 1044.

[2] Carlson, A. J.: The Influence of Stimulation of the Gastric Mucosa in the Contractions of the Empty Stomach (Hunger Contractions) in Man, Am. Jour. Physiol., 1913, xxxii, 262.

PRACTICAL VALUE OF PREVENTIVE MEDICINE—ANOTHER EXAMPLE

The benefits and practical value to human health of modern preventive medicine have again been well illustrated in the army camps which have been established in 1911 and 1913. Certainly the success attending the efforts of army sanitarians at these camps, or "mushroom cities," holds much of promise to the people of both town and country. Such disasters as those connected with the camps during the Spanish War need no longer be feared, and the parents of the young volunteer of future wars may be assured that if he is spared the bullets of the enemy he will not fall a sacrifice to his patriotism through ignorance of how to keep well—that is, provided recently discovered methods of preventive medicine are put into effect, as has been the case in recent camps. In the brief account which appears elsewhere in this issue, of the health conditions in the camp of the Second Division near Galveston, we read of a sanitary competence that is further removed from the insanitary camps of the Spanish War than were the latter from those of the middle ages. The truth is, however, that men are prone to forget lessons learned through long experience if not living under conditions constantly enforcing them. The Mosaic sanitary rules are not new, but those who grow up with no thought of water-supply or sewage disposal are usually helpless when thrown suddenly into a situation where these are not provided. Here the penalty of ignorance has been death. That the men in these camps were selected and of good physique does not make less remarkable the lesson of preparation read in the results of protection from the epidemic of contagious diseases to which such a group of men is liable. The explanation of the results, which include no typhoid or small-pox and but eighteen cases of malaria among twelve thousand men in five months, in a country where these diseases are frequent, is merely the utilization of sanitary methods within the reach of any of our communities, large or small. Just as remarkable is the fact that the average monthly number of cases of venereal diseases among these twelve thousand *men* is seventy. Preventive medicine applied to a receptive and intelligent population would seem to be a profitable investment for any community, even looking at the matter solely from the dollars-and-cents point of view.

MEDICAL ADVERTISING AND THE NEW ORLEANS *ITEM*

For years THE JOURNAL has maintained that practically all "patent medicine" advertising is fraudulent. This claim has been denied with various degrees of insistence by those interested directly or indirectly in the "patent medicine" business. The "patent medicine" men themselves have, of course, been the most outspoken in their denunciation of THE JOURNAL'S attitude in this matter and, in their attempt to offset the damaging proofs which have been submitted, have accused some of the officers of the Association of practically every crime in the calendar. Moreover, they have not hesitated to purchase those publications whose editorial pages were for sale for the purpose of directing a flood of verbal sewage against those responsible for THE JOURNAL'S policy. Less virulent, if not less dangerous to the public, were those newspapers that offered in their advertising pages a welcome haven to the "patent medicine" frauds and quacks. Even conservative and decent newspapers have held that THE JOURNAL'S attitude in this matter was extreme to the point of fanaticism. Nevertheless, THE JOURNAL'S propaganda is having its effect. One by one newspapers of the better class are adopting THE JOURNAL'S attitude toward the fraudulent "patent medicine." One of the latest of the great papers of the country to do this is the New Orleans *Item*, which, on October 1, put into effect a new set of rules governing the acceptance of medical advertising "copy" to its pages. These rules are reproduced in full in the Propaganda Department of this issue. They are worth reading. The *Item* has had this step under consideration for some months and enlisted the help of THE JOURNAL staff for suggestions regarding the rules it finally adopted. While the *Item*, under its new rules, will not reject all "patent medicine" advertising, it will reject both such as is plainly fraudulent and also such as it may find reasonable grounds to suspect after subjecting it to a most rigid scrutiny. As to the effect that these rules will have on the medical advertising previously carried by the *Item*, this is excellently expressed in a letter recently received from the managing editor. He writes: "Practically the whole business will go out on October 1. I am frank to say that I did not know how bad it was until I had it collected and began to look at it in a critical way." Yet it should be borne in mind that the New Orleans *Item* was no worse—in fact a great deal better—than many of the large metropolitan dailies. The admission, then, that under its new rules *practically* the whole business of medical advertising will go *out* is a sermon in itself. The rules, while excellent, are in *no* sense extreme. If their enforcement causes the rejection of practically all medical advertising copy, then the "patent medicine" business is all that THE JOURNAL has ever said it was—and more.

THE LOW COST OF DYING

This comment has nothing to do with medicine. The matter discussed concerns physicians only to the extent that members of the medical profession are among the leaders of thought in their respective localities. The newspapers of the country recently contained the following brief item of telegraphic news sent out by the Associated Press:

> New York. September 26.—Max Blanck, one of the proprietors of the Triangle Waist Company, whose building was swept by fire in March, 1911, with the loss of 140 lives, was found guilty to-day of having the doors of the factory fastened August 5 of this year. He was fined $20.

One hundred and forty young lives were sacrificed to a horrible and needless death. A heap of charred corpses just inside a bolted door told the gruesome story. But Max Blanck and his partner went free. Now he is arrested again for having his factory doors locked as they were locked on that awful day in March, 1911. This time Blanck is found guilty and fined twenty dollars! Those good conservative souls with ossified intellects who deplore the present social unrest and the signs of revolt among what we are pleased to call the "lower classes" might, if they would, find in such cases as these a possible explanation for the phenomenon that gives them such concern. Meanwhile, with Franklin P. Adams, in his "Cui Culpa?" we feel like saying:

Pray God we grow not bitter, but it makes the vision red—
This hellish truth of crushed-out youth, this tale of needless dead!
No single name shall bear the blame, go "probe" ye ne'er so deep,
For the Cost of Living rises high, but the cost of life is cheap.

THE NATURE OF THE URINE SUGAR IN PENTOSURIA

The occurrence of pentose in the urine under certain anomalous and little-understood conditions has been known more than twenty years since its presence was first discovered by Salkowski. For many years the precise nature of the five-carbon sugar actually excreted in pentosuria has been debated. Despite the growing number of cases which have been detected and have found their way into medical literature, there still is no unanimity on the chemical feature just referred to. So long as the exact chemical structure of the carbohydrate eliminated is not definitely determined there is little prospect of any satisfactory explanation of this rather unique perversion of metabolism. Until quite lately the view has prevailed that the excreted sugar of pentosuria is arabinose. Recently Elliott and Raper[1] suggested the possibility that the urine pentose sugar is ribose. This has now been further emphasized by new observations[2] leading to the same conclusion, though it is still admitted that perhaps more than one type of pentosuria may occur. From the point of view of tissue chemistry the appearance of ribose is more readily interpreted, since this pentose has been demonstrated to be a constituent fragment of some of the nucleic acids.

WHY MEDICAL ADVERTISING IS GENERALLY FRAUDULENT

At different times, we have been asked the question: Why is medical advertising usually fraudulent? This question has been answered to the best of our ability, but we have never answered it any better than does *Standard Advertising* in its issue of September, 1913. This magazine is carrying on a campaign for clean advertising. Here is its explanation:

"In the orderly working out of our campaign in favor of clean publications some criticism has come to light because, according to our notion, medical advertising is not legitimate.

"The contention that a doctor, or the owner of a proprietary remedy, may be as honest as a regular medical practitioner is true. He *may be*. But if he told the truth about his service he would make no advertising profit.

"No advertising doctor possesses any secret which the profession does not possess. He must make believe some unusual advantage or his advertising will not pull.

"Again, sick people are, as a rule, gullible. They are discouraged, disheartened, and in no condition to analyze. They grab at straws, and the main thing which medical advertisers do is to make the patient 'feel better' regardless of the permanent effect on the system.

"This brings about the 'dope' which is so much in evidence in advertised remedies and treatments.

"*Standard Advertising* has no criticism to make of any doctor simply because he advertises, but the facts stand out clearly that if he makes his offer in keeping with the truth he will not attract business, and for that reason medical advertising is at least 90 per cent. fake advertising."

CHILD LABOR IN GEORGIA

At least for another year 10-year-old children, who can neither read nor write, will lend their efforts to increasing the fortunes of the cotton-mill owners of Georgia. The Anderson bill, which raised the age limit for working children to 13 years for 1914 and provided for a further increase to 14 years in 1915, has been sidetracked in the legislature, and the session is about to close. Georgia has made practically no advances along this line since 1906. This is not creditable to the traditional chivalry and civilization of the South.

Medical News

ILLINOIS

Personal.—Dr. John H. Wedig, Granite City, was seriously burned on the face and hands September 12 when the engine of his automobile caught fire, destroying the machine.——Dr. J. A. Campbell, recently appointed superintendent of the Watertown Hospital, took charge September 14.——Hastings H. Hart has resigned as state superintendent of the Illinois Children's Home and Aid Society.——Dr. S. V. Balderston, Evanston, has resigned as commissioner of health.

Medical Society Refuses to Nominate Evanston Commissioner of Health.—The Evanston Branch of the Chicago Medical Society has declined to accede to the mayor's request for the nomination of a commissioner of health in view of the facts that the city is unable to remunerate adequately the service of a physician of the type required, and that the honor of the office has been lowered by placing the health department under control of a new officer, the director of public safety.

Prevention of Tuberculosis.—Peoria has passed an ordinance for the expenditure of $20,000 for a municipal tuberculosis hospital.——The La Salle County supervisors have appropriated $3,200 for a county sanatorium for tuberculosis patients. The La Salle County Anti-Tuberculosis League was organized at Ottawa, September 14. The following officers were elected: president, William Bedford, La Salle; vice-presidents, Drs. E. W. Weis, Ottawa; William Schoenneshofer, Lostant; Roy Sexton, Streator; E. P. Cole, Mendota; A. J. Weirick, Marseilles; Benjamin J. Nauman, Peru, and Fred Guthrie, La Salle.——The Lake County supervisors are expected to select a 10-acre tract of land near Waukegan for a tuberculosis colony.——The Illinois State Association for the Prevention of Tuberculosis will hold its annual meeting in connection with the meeting of the Illinois State Conference of Charities at Rockford, October 13.

Chicago

Personal.—Dr. W. J. Anderson has resigned as night warden of the county hospital.——The sixty-sixth anniversary of the birth of Dr. Alfred C. Cotton was celebrated, September 25, at the Hotel Sherman by a banquet given in his honor by his associates in the Chicago Medical Society, who presented him with a diamond-studded gold watch.——Dr. C. Volini has been

---

1. Elliott and Raper: Jour. Biol. Chem., 1912, xi, 211.

2. Levene, P. A., and LaForge, F. B.: Note on a Case of Pentosuria, Jour. Biol. Chem., 1913, xv, 481.

appointed by Governor Dunne as member of the West Park commission.——Dr. William Wild has been appointed director of the Nebraska State bacteriologic and pathologic laboratory.

Relief Work for Tuberculous Children.—Trustees of the Municipal Tuberculosis Sanatorium have arranged to assist the Elizabeth McCormick Memorial fund with $7,000 for this season's work in open-air schools and other relief work for children affected with tuberculosis.

Tuberculosis Sanatorium to Be Built.—The cornerstone of the Sanatorium for Advanced Cases of Tuberculosis, which has a 10-acre tract at Fiftieth and Belmont avenues, will be laid October 19 under the auspices of the Jewish Consumptives' Relief Society, which is endeavoring to raise $50,000 for the new work. It is intended to make the institution one of the best in America.

INDIANA

New Officers.—Second District Medical Association at Washington: president, Dr. A. T. Custer, Linton; secretary, Dr. T. Roy Cook, Bloomfield.

Personal.—Dr. James B. Bobbitt, Indianapolis, has been appointed assistant surgeon in the Medical Reserve Corps of the United States Navy.——Dr. John S. Dukate, Alford, celebrated his ninetieth birthday anniversary September 21. ——Dr. A. G. Pohlman of the faculty of the Indiana University Medical Department has been elected head of the department of anatomy in St. Louis University.

Canvass for Hospital Funds.—The Methodist Episcopal Hospital, Indianapolis, on account of the enormous demand for rooms, has decided to build a new wing and also a nurses' home that will accommodate 100 nurses, and also provide additional facilities for labor work. At a recent meeting of the board of trustees, Hon. Charles W. Fairbanks was elected as chairman and teams were organized to raise $250,000 in a ten-day campaign.

Tuberculosis Notes.—The Floyd County Board of Commissioners, at a meeting in New Albany, denied the petition of the New Albany Anti-Tuberculosis Society for an appropriation of $20,000 or any other amount to establish a tuberculosis hospital in New Albany. The society has been offered a 40-acre tract of land on the knobs back of New Albany as a site for the proposed tuberculosis hospital, and will endeavor to raise $2,000 for the erection of an administration building. ——The business men of Portland have raised sufficient funds to erect a tuberculosis cottage on the Jay County fair grounds. This cottage will eventually be moved into the city and placed in charge of a trained nurse.

MARYLAND

Cooperative Purchasing Committee.—The Cooperative Purchasing Committee of the five state hospitals for the insane which has just been organized, will award bids for supplies for the five institutions for three months. This committee consists of the superintendent of each of the state institutions for the insane and has direct charge of the purchasing of all supplies.

Investigation of Trachoma.—Surgeon-General Herbert Harlan, a member of Governor Goldsborough's staff, will leave Baltimore shortly for Knott County, Kentucky, where he will begin an investigation of the prevalence and cause in that community of trachoma. Dr. Harlan will go under the direction of the Surgeon-General of the United States Public Health Service. He will outline a campaign to be carried on by the Knott County physicians.

Will Study Infectious Diseases.—Health Commissioner Gorter has gone to New York to inspect the health department of that city and to visit its hospital for minor infectious diseases, and will stop in Philadelphia for a similar purpose. He is seeking information to be used in designing a new ward building at Sydenham, to cost $30,000, and in planning quarters for the local health department. The building at Sydenham is to be for the treatment of measles.

Report on Tropical Diseases.—A complete report on tropical diseases prevalent in Ecuador and adjacent republics is being made to Superintendent Smith of Johns Hopkins Hospital, by Dr. A. W. Sellards of the Hopkins staff, who returned recently from an expedition to South America to study tropical ailments. Dr. Sellards was the representative of Johns Hopkins Hospital in the expedition sent out by the Harvard Medical School, under the direction of Dr. Richard P. Strong.

Medical College Opening.—So great was the rush for matriculation, that the lists for the coming term of the Johns Hopkins Medical School were closed two months ago and applicants have been turned away every day since. Ninety was the number set for each class, and when this number was reached, no more students were admitted. Practically all of the new students are from the United States; there being two from Canada, two from Scotland and one from China. There are seventy women among the four classes.

New Buildings for Hospitals.—Work has been commenced on the John Hubner Psychiatric Hospital at the Springfield State Hospital. The construction and equipment of this building will cost about $150,000. It is to be used as a reception hospital and is well equipped with all modern facilities for the study and treatment of mental cases.——Contracts have been awarded and ground broken for the first of a series of buildings for the Eastern Shore State Hospital for the Insane at Cambridge. It is expected that the building will be completed by spring for the reception of at least 200 patients.—— A new cottage for private patients has just been completed at the Relay Sanitarium.

MINNESOTA

Reorganization of Minneapolis City Hospital Staff.—The reorganization of the Minneapolis City Hospital staff has been completed, the staff being divided into two groups, the first composed of men on the medical staff of the University of Minnesota, and the second group of men not on the university staff.

University Clinics to Be Continued at St. Paul City and County Hospital.—The controversy between the University of Minnesota medical school and the board of control of the City and County Hospital has been satisfactorily adjusted, the board approving the appointment of the university staff surgeons and physicians recommended by President Vincent and continuing the clinics at the hospital.

Measures Against Tuberculosis.—The county commissioners of Hennepin County, in which Minneapolis is located, have tentatively appropriated $50,000 for a county tuberculosis hospital, for which the state will donate $50,000 and pay $5 a week for the care of each patient.——The new tuberculosis sanatorium of Otter Tail County, built at Otter Tail Lake, will be ready to receive patients by October 10.——The county commissioners of Lyon County have appropriated $6,000 to establish and maintain a tuberculosis sanatorium, provided that at least three other counties shall contribute their share toward the cost of such a sanatorium.

NEW YORK

New York City

Opening of College of Physicians and Surgeons.—The College of Physicians and Surgeons of Columbia University held its opening exercises on the morning of September 24, at which time Dr. George E. Brewer, professor of clinical surgery, made the opening address on "Standards of Success in the Practice of Medicine."

Course in Sex Hygiene for Teachers.—It is announced that New York University has established a course in sex hygiene for students in the school of pedagogy. The course will consist of ten one-hour lectures. The lecturers appointed for this course are Dr. Edward L. Keyes, Jr., Dr. Rosalie Slaughter Morton and Thomas M. Balliet, Ph.D., dean of the school of pedagogy of New York University.

Milk Stations End Twenty-Second Year.—The infant milk stations founded and maintained by Nathan Straus have completed their twenty-second year. There are now eighteen of these stations in Manhattan and the output during the past year was 2,193,210 bottles of pasteurized milk and 1,545,419 glasses of milk were served from the booths. During the past twenty-two years 35,000,000 bottles of pasteurized milk have been served to the babies of Manhattan. The output for the first year, 1892, was 34 000 bottles.

Special Classes for Stutterers.—The Board of Superintendents of the Board of Education has issued special instructions for parents and children for the cure of stuttering. They state that the public schools are proving day by day that the habit of stuttering can be cured. A speech-improvement class has been formed and parents are urged to see that children afflicted with stuttering seek admittance. Parents are instructed as to the methods that they may use in order to cooperate with the school and to supplement the work of the school class.

Personal.—Dr. Charles F. Bolduan has been appointed lecturer on hygiene and sanitation in the medical department of New York University.——Dr. Walter Bensel is to be retired as sanitary superintendent of the Board of Health on October 1, under the law which permits retirement at the end of twenty years' service at a pension not to exceed one-half salary.——Dr. Walter Mendelson has been named the fourth alumni member to succeed the late J. Pierpont Morgan in the board of trustees of Columbia University. Dr. Mendelson is the first alumni member of the board to be chosen from the College of Physicians and Surgeons.——Dr. John W. Dowling, while making a professional visit in Easton, Pa., was stricken with apoplexy and is lying in a serious condition at the Easton Sanatorium.

Typhoid Outbreak Checked.—It is stated that the typhoid epidemic on the East Side is now well in hand and that the number of cases reported is rapidly decreasing. From September 3 to September 25 there were 271 cases reported on the East Side from the Battery to Fortieth Street, while the number of cases reported from other parts of the city was below normal. This outbreak is pointed to as a lesson against the use for drinking purposes of any milk other than that designated as "Grade A" or of pasteurized milk that has been carefully guarded against contamination after it has been pasteurized. Dr. Lederle has expressed the opinion that antityphoid vaccination, if made compulsory as vaccination against small-pox now is, would make such an epidemic impossible, but he does not think that the public is educated to the point where such a step would be practical.

Improvements at the Otisville Sanatorium.—A new shack which will accommodate twenty-four children has recently been opened at this institution and it is hoped that two new pavilions for women which are in the process of construction will be ready for occupancy within a few weeks. These additions will provide for 100 patients and will bring the total capacity of the institution up to 600. The corporate stock budget recently passed provides among other things funds for the construction of a staff house and a nurses' home, and $75,000 has been made available as a general building fund, part of which will be used in constructing additional pavilions for both men and women. Early in the present year a number of the patients were treated by means of artificial pneumothorax, and up to date some twenty have been treated by this method. The results obtained have been quite generally encouraging.

Food Inspection.—For the purpose of guarding the city's food supply a laboratory of eight chemists and seven technical assistants is employed, together with four bacteriologists and ten assistants. During the year 1912 nearly 24,000,000 pounds of meat, fruit, eggs, fish and other foods were condemned and destroyed. There were 423,732 separate inspections made of premises where meat and other foods were handled and sold. Of 1,409 samples of food procured for anaylsis 421 were found adulterated. During the year 2,260 arrests were made by the Division of Food Inspection and in 1,911 cases fines to the amount of $14,070 were imposed by the courts. During the first six months of 1913 fines to the amount of $10,923 had been obtained. These figures were exclusive of milk inspection. There were 41,292 inspections of dairies, and 19,577 quarts of adulterated milk were destroyed, 1,763 arrests made, and $11,397 was collected in fines.

NORTH CAROLINA

Malaria Prevention.—Surgeon Henry R. Carter, U. S. P. H. S., accompanied by Dr. John C. Rodman of Washington, N. C. (local U. S. P. H. S. officer) has just returned to his station after visiting a number of eastern Carolina towns and holding public meetings in the interest of increased professional and public activity in the prevention of malaria.

New Staff Provisions.—Following recent consultations of the advisory board and the active board of managers of the Mission Hospital at Asheville, and growing out of the manifest professional dissatisfaction of having a public hospital with a permanent and non-rotating staff it is officially announced that, beginning with the annual election in November, three new members will be added to the staff biennially. In this way a portion of the staff at least will be renewed each two years and the objections to further appropriations to one of Asheville's most worthy charities will doubtless be removed.

Quick and Good Work.—The handsome annual octavo volume of Transactions of the State Medical Society of North Carolina, edited by the secretary, Dr. John A. Ferrall, appeared the last week of August, within seventy days of the meeting, containing a full report of the June session of the state society at Morehead City, the various papers presented, obituaries of deceased members of the profession, proceedings of the State Board of Health, State Association of Public Health Officers and a number of tables containing valuable data relative to the society.

State Sanatorium Closed.—By order of the board of directors the State Sanatorium for Tuberculosis at Montrose was closed September 15. Dr. M. Eugene Street, superintendent, has also tendered his resignation, which has been accepted by the board. Additional improvements are being made and the directors hope to fill the vacant superintendency and reopen the institution by the middle of October. Following the closing of the sanatorium there was held a called session of the State Board of Health in Raleigh last week, where a proposition from the sanatorium board of trustees was considered by the Board of Health. By mutual consent a bill will be introduced in the present special session of the legislature providing that the members of the State Board of Health shall become *ex officio*, the board of directors of the State Sanatorium for Tuberculosis, and abolishing the present board of sanatorium directors. With the entire control of the State Tuberculosis Sanatorium in its hands, it is the purpose of the State Board of Health to inaugurate a statewide campaign of education for the management of tuberculosis, and especially to secure for as great a number of early stage patients as may be possible a brief stay in the state institution where opportunities for learning how to care for themselves may be afforded. The plans of the Board of Health meet with the cordial approval of present sanatorium directors, who will cooperate in the efforts to secure larger results from the state's investment at Montrose.

PENNSYLVANIA

New Hospital.—As a memorial to his wife, the late Stella M. Elkins, George W. Elkins is erecting at Abington a modern hospital. Announcement of the action of Mr. Elkins was made September 25. It had been planned to build the institution by the aid of public subscription. The cornerstone was laid by Mr. Elkins on September 26, and the hospital will be called the Abington Memorial Hospital, instead of the Abington General Hospital, the name selected by those who started the movement of its erection. The gift of Mr. Elkins has been accepted by the board of trustees, and is said to be about $100,000.

Meeting of State Medical Society.—The meeting of the Medical Society of the State of Pennsylvania was held in Philadelphia, September 22 to 25. Over one thousand registered. The visitors were entertained the day preceding the opening, and the day after the closing of the scientific meeting by clinics in all of the prominent hospitals of the city. Much interest was manifested in the resolution recommending the reporting to the health authorities of all forms of venereal disease. This resolution was adopted by the society. The next meeting of the society will be held in Pittsburgh. The following officers were elected: president, Dr. E. B. Heckel, Pittsburgh; vice-presidents, Drs. Henry D. Jump, Philadelphia, J. B. Anderson, Waynesboro, J. H. Wilson, Philadelphia and J. B. McMurray, Washington; secretary, Dr. C. L. Stevens, Athens (reelected); assistant secretary, Dr. William H. Cameron, Pittsburgh; treasurer, Dr. George W. Wagoner, Johnstown.

Philadelphia

Course in Eugenics for School Girls.—A special course in eugenics, in connection with the study of physiology, has been devised for the students in the high schools for girls of this city.

Report of Membership in State Society.—The report of the secretary of the state medical society, Dr. C. L. Stevens, at the sixty-third annual meeting of the society, shows that the membership numbers 6,044. This is a gain of 271 over the previous year.

Dr. Neff Asks for Typhoid Experts.—Dr. Neff, director of the Department of Health and Charities, has asked the Civil Service Commission to suspend competitive examinations in order that he may obtain the service of either Prof. William T. Sedgewick or Prof. George C. Whipple of Boston, in abating the epidemic of typhoid fever now prevailing in this city.

Medical Colleges Open.—During the past week all the medical colleges of this city, excepting the medical department of the University of Pennsylvania, were opened for the session of 1913 and 1914. In nearly all there was a falling off in the number of students admitted in comparison to previous years. In some, where the entrance requirements were originally forced, the freshman classes have fallen off 30 per cent.

Indeed, the reduction in the number of admissions may reach 50 per cent.

Personal.—Dr. Robert C. Parrish has been appointed supervisor of the Public School Medical Inspection Corps, to succeed Dr. Ralph H. Spangler.——Dr. Robert J. Hunter has been appointed by Dr. Neff to the Corps of Medical Inspectors.——Dr. Charles F. Nassau has been appointed professor of applied anatomy in Jefferson Medical College to succeed the late Dr. George McClellan.——Dr. Morris Jastrow has accepted an invitation from the Royal Society of Medicine of England to deliver the lecture of "The Hospital of Early Medicine." Professor Jastrow sailed for England September 27.——Dr. M. B. Hartzell has been made assistant diagnostician and consultant for the Bureau of Health, to succeed Dr. J. F. Schamberg.

GENERAL

Health Officer Goes to Refugee Camps.—Dr. E. S. McCain, who is in charge of quarantine work of the State Board of Health at Galveston, has proceeded to Tampico, Mexico, to assume charge of the refugee camps at that place.

Polish Physicians Hold Meeting.—The first annual convention of the Polish Physicians' Alliance of America was held in Detroit, September 19 and 20. Dr. Francis E. Fronczak, Buffalo, N. Y., was elected president; Dr. Stanislaus N. Borowiak, Buffalo, N. Y., secretary, and Dr. Edmund P. Koneczny, Detroit, Mich., treasurer.

Repeated Physical Examination of Engineers Urged.—Rigid annual government physical and mental examinations of every government engineer in the United States, and of others to whom are entrusted the safety of interstate travelers will be suggested to Congress by Surgeon-General Rupert Blue, U. S. P. H. S., and Congress will be asked to frame a statute placing this work under the department of commissioners and the officers of the Public Health Service.

Choose New Emblem.—The special committee of the National Association for the Study and Prevention of Tuberculosis, of which Dr. Henry Barton Jacobs is chairman, has announced the exact proportions of the double red cross, the international tuberculosis emblem adopted for use. The design chosen is one in which all the arms are pointed, the two cross arms being the same length. The width of the cross is taken as the unit, the length of the lower leg being 7 units, the arms 3 units on either side, the points above the arms 2½ units, and the distance between the arms 1½ units.

Meeting of Obstetricians and Gynecologists.—At the twenty-sixth annual meeting of the American Association of Obstetricians and Gynecologists, held in Providence, R. I., September 16 to 18, the following officers were elected: president, Dr. Charles N. Smith, Toledo, Ohio; vice-presidents, Dr. Hugo O. Pantzer, Indianapolis, Ind., and Dr. J. H. Branham, Baltimore, Md.; secretary, Dr. E. Gustav Zinke, Cincinnati, Ohio (reelected); executive council, Drs. Charles L. Bonifield, Cincinnati, Ohio, Herman E. Hayd, Buffalo, N. Y., John W. Keefe, Providence, R. I., X. O. Werder, Pittsburgh, Pa., Miles F. Porter, Fort Wayne, Ind., and Louis Frank, Louisville, Ky.

Prevention of Infant Mortality.—The fourth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Washington, D. C., November 14-17, with headquarters at the Willard Hotel. The subjects which will be discussed will include: eugenics, pre-natal care and instruction of mother, adequate obstetrical care, problems of infant hygiene and infant feeding, standards of training for infant welfare nursing, continuation schools of homemaking, the relation of vital statistics to plan for social betterment and the relation of the plans for the conservation of infant life to the general ideals of conservation.

The Missouri Valley Physicians' Meeting.—The twenty-sixth annual meeting of the Medical Society of the Missouri Valley was held in the Rome Hotel, Omaha, September 18 and 19. The address on surgery was delivered by Dr. Charles H. Mayo, Rochester, Minn., and the address on medicine by Dr. Alfred C. Croftan, Chicago. The following officers were elected: president, Dr. Flavel B. Tiffany, Kansas City, Mo.; vice-presidents, Drs. Granville N. Ryan, Des Moines, Iowa, and Austin McMichael, Rockport, Mo.; secretary, Dr. Charles Wood Fassett, St. Joseph, Mo. (reelected), and treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo. Lincoln, Neb., was selected as the place for the semi-annual meeting.

Railway Surgeons Elect.—The annual meeting of the Pennsylvania Railroad Surgeons' associations, and of the lines East and West, was held in Atlantic City, September 22 and 23. The associations voted to hold their meetings next year in the same place and the following officers were elected: Lines East.—President, Drs. George L. Romine, Lambertville, N. J.; vice-presidents, Herbert F. Gillette, Cuba, N. Y., and William Martin, Atlantic City; secretary, Dr. A. W. Colcord, Clairton, Pa.; treasurer, Dr. Joseph C. Egbert, Wayne, Pa. Lines West.—President, Dr. H. P. Linsz, Wheeling, W. Va.; vice-presidents, Drs. Hiram J. Coon, Colfax, Ind., and Charles Graefe, Sandusky, Ohio; secretary, Dr. J. D. McCann, Monticello, Ind.; treasurer, Dr. O. E. Holloway, Knightstown, Ind.

New Officers of Public Health Association.—At the annual meeting of the American Public Health Association, held in Colorado Springs, September 9 to 12, the following officers were elected: president, Dr. W. C. Woodward, Washington, D. C.; vice-presidents, Drs. John F. Anderson, U. S. P. H. S., Washington, D. C., Mario Labredo, Havana, Cuba, and C. J. Hastings, Toronto, Ont.; secretary, Prof. Selskar M. Gunn, Boston (reelected); treasurer, Dr. Livingston Farrand, New York City (reelected). Lee K. Fraenkel, New York City, was appointed chairman of a new committee to unite more closely the sociologic section of the association with that of vital statistics, and also to interest large corporations in the industrial health campaign now being urged. The Section of Public Health Officers elected Dr. C. V. Chapin, Providence, R. I., chairman, Dr. Nolan Pauchan, Ottawa, vice-chairman, and reelected Dr. E. C. Levy, Richmond, Va., secretary, and Dr. A. S. Fell, Trenton, N. J., recorder. Jacksonville, Fla., was selected as the next place of meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

Seney Hospital, Brooklyn, N. Y., $1,000 by the will of Mrs. Emmalissa Pervis.

Auburn (N. Y.) City Hospital, $20,000, Women's Hospital in the State of New York, $5,000, Presbyterian Hospital, New York City, $5,000 by the will of Homer N. Lockwood.

University of Pensylvania Hospital, $5,000, for the maintenance of a bed in the orthopedic ward in that institution, by the will of Fannie H. Dixon.

Invalids' Home and Maternity Hospital in Philadelphia, $5,000, by the will of Cornelius A. Lane.

Hahnemann Hospital, $5,000, by the will of Margaret H. Frederick.

St. Louis Medical Society, residue of the estate of $50,000 after payment of certain legacies, to set up and maintain a room in memory of her son, Hugo Barscher, by the will of Mrs. Franziska Barscher, St. Louis.

Sibley Hospital, Washington, D. C., $50,000, donated by George O. Robinson, Detroit, in the name of the Women's Home Missionary Society of the Methodist Church.

Newport (R. I.) Hospital, $4,000, donated by Mrs. William G. Weld, Boston, to establish a free bed in memory of her husband, and $1,000 donation from Stewart Duncan.

Infectious Diseases.—During September the chief interest concerning infectious diseases centered, perhaps, in the annual conference on pellagra in South Carolina. The apparent large increase and wider distribution of pellagra, both in this country and abroad, has made it of the highest importance among the infectious diseases. Prof. Louis Sambon, of the London School of Tropical Medicine, who attended the conference, reported that over fifty cases of pellagra had been discovered in Great Britain, where previously it was thought the disease did not exist. Cases have been reported more recently from The Shetland and Hebrides Islands. The comparatively recent discovery of several thousand cases of the disease in Mississippi is also an additional index of its great prevalence. The pellagra conference developed nothing particularly new as to the etiology of the disease. The infectious theory is probably gaining stronger hold through the intensive studies of the Thompson-McFadden Commission in South Carolina and others studying the disease, and the theory of the rôle of insects in its transmission is probably gaining strength. While Professor Sambon still adheres to the insect theory of transmission, he does not insist that the simulium, or sand-fly, is the only insect involved. Others of the conference were inclined to the belief that flies were the more probable conveyors.——But few cases of poliomyelitis have been reported throughout the country during the month. The season of 1913 has not recorded many cases of poliomyelitis. With the opening of the school season there has been a slight increase in the number of scarlet fever and diphtheria cases reported.——Under date of September 22, cholera is reported from Kherson, Odessa, and Sebastiaport, Russia, and from Bucharest, Roumania, from which place 1,137 cases with forty-five deaths have been reported.——Two fatal cases of plague have been reported from California, one in a laborer at Martinez during the present month, and the other in a Japanese woman, a field-worker, in San Benito County earlier in the summer. The diagnosis in both cases was confirmed by Dr. J. D. Long and Dr. D. H. Curry of the U. S. Public Health Service at San Francisco.

promotion in the Legion of Honor for the principal collaborators of this establishment. Owing to the renown of Pasteur's studies of rabies, an international subscription opened by the Académie des Sciences de Paris soon amounted to $500,000 (2,500,000 francs), and permitted the foundation, Nov. 18, 1888, of the Institut Pasteur. It was too small almost as soon as it was built, so numerous were the workers who congregated there from all parts of the world. Following a paper by Dr. Roux in the Budapest congress in 1894 on the treatment of diphtheria, a new subscription opened by the *Figaro* brought in about $200,000 (1,000,000 francs). It was used in arranging in the estate of Garches, lent by the government, great stables where it was possible to immunize a large number of horses to furnish antidiphtheria serum. The success of serotherapy drew to the Institut Pasteur new donations which were counted by millions and which permitted the acquisition in Paris itself, between the rue Dutot and the rue de Vaugirard of more than 14 hectares (about 34 acres) for the building of a hospital of 100 beds and of an institute of chemical biology facing the old laboratories of physiology and pathology. It is interesting to know that among the gifts the largest and most numerous were from Jews. The most important bequest in 1907 was from the banker and philanthropist, Osiris, which amounted to over $4,000,000 (20,000,000 francs). As M. Daniel Berthelot, professor in the Faculté des Sciences de Paris, recently observed, the gifts which have permitted the foundation and the development of the Institut Pasteur are comparable with those in which the New World takes pride. The character of the gifts, however, is different. In the United States such gifts are bestowed almost indifferently on pure science and humanitarian objects. Among us the enthusiasm which causes the gift of millions for a library or observatory is not so readily excited. At present the Institut Pasteur is a center at once of scientific research, of higher instruction and of therapeutic treatment. It is divided into three principal sections, a microbiologic section, a serotherapeutic section, and a section of biologic chemistry. One of the sources of superiority of the Institut Pasteur consists in its independence. It was founded and is carried on without official superintendence and hence has a spirit of initiative and of adaptiveness which administrative oversight scarcely permits to our government establishments.

The Mortality from Syphilis

At one of the recent sessions of the Société française de dermatologie et de syphiligraphie, Dr. Leredde read a paper intended to prove that in a great city like Paris, after tuberculosis, syphilis is the most frequent cause of death, exceeding cancer. In 1910, for example, 11,000 deaths, in round numbers, were due to tuberculosis and 2,500 to cancer. According to the researches of Leredde, at least 3,000 deaths are due to diseases caused by syphilis. Official statistics, however, attribute to syphilis only a small number of the deaths which are really caused by it. "The language of statistics," says Leredde, "like the language of medicine, is still an anatomoclinical language at many points; that is, it is incomplete. When statistics attribute a death to round ulcer, angina, softening of the brain, or spinal diseases, it may be due to syphilis that the physician has neglected to investigate or to mention. Reckoning up the deaths due to the diseases of the nervous system, circulatory system, etc., Leredde concludes that out of 10,821 deaths in 1910, syphilis was responsible for 3,374, or a little more than 31 per cent.; and even at that he has not reckoned non-tuberculous diseases of the larynx, diseases of the lungs, of the pancreas, of the spleen and of the thyroid; diabetes, which is sometimes of syphilitic origin; gastric ulcer, of which syphilis is perhaps often the cause; icterus gravis, and especially the diseases comprised under the headings "congenital debility, icterus and scleroma of the new-born," which caused 1,268 deaths in 1910.

Dr. A. Renault made several apparently well-grounded objections, remarking that one must not fall into the error humorously touched on by Ricord, who said that, according to the way things were going, internal pathology would soon become an annex to syphilis. While there is no question of the diagnostic value of the Wassermann reaction, it should be remembered that this reaction has not always the significance accorded to it with regard to visceral lesions. "Post hoc, ergo propter hoc" is not always correct, and the existence of syphilis does not justify the assertion of the syphilitic nature of a concurrent disease. The statistics of the tertiary stage show that in most cases syphilis is not the terrible disease that Leredde would make it. Out of 2,396 cases, Professor Fournier has observed only 3 per cent. of tertiary complications in patients who have taken treatment for at least three years. Professor Jadassohn of Berne, who is carrying on similar researches on prostitutes, has come to similar conclusions. He found only 4.6 per cent. of tertiary complications among those who had been regularly treated, and every one knows how poorly these women observe the laws of hygiene. Recent statistics of W. Perls are still more conclusive. From a study of the cases of syphilis treated at the Breslau clinic from 1901 to 1907 he found that out of 6,203 syphilitics only 1.0 per cent. had tertiary manifestations. In view of the enormous number of syphilitics in the world, it is not surprising that a positive Wassermann reaction is so often encountered, but the presence of a positive Wassermann does not justify the assertion that the visceral lesion from which the patient suffers is syphilitic. The deviation of complement indicates that the subject is tainted with syphilis and that is all. This taint by no means excludes the possibility of other diseases.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 12, 1913.

Personal

A few weeks ago Professor von Behring met with a serious accident. He slipped and sustained a fracture of the neck of the femur; this was complicated by a gastric fever so that he was seriously ill for some weeks. At the present time he is under treatment with an extension apparatus and consequently must keep his bed for a number of weeks longer. On this account, he is prevented from delivering an address on his new remedy at the Vienna Scientific Assembly.

The Rudolf Virchow Building of the Berlin Medical Society

As I stated some time ago, the projected building of the Rudolf-Virchow-Haus by the Berlin Medical Society has been markedly advanced by the aid of the Berlin municipal authorities. The committee in the city council has approved the suggestion of the city government on the matter, and it is to be expected that the council as a whole will pass the motion. The building is to have three assembly rooms for demonstrations, a Virchow museum and a library calculated to contain 200,000 volumes, together with a reading-room.

The Purchase of Mesothorium

The favorable results which have been obtained with mesothorium radiations in carcinoma by the gynecologist Bumm, Krönig and others have excited great attention in our newspapers and partly under the pressure of public opinion and partly instigated by the wishes of the directors of the hospitals, the municipal authorities in a number of cities, as I have already mentioned, have determined to purchase some mesothorium and radium. Berlin has appropriated $50,000 (200,000 marks) for this purpose, and $200,000 (800,000 marks) have been appropriated for the same purpose by the Prussian Department of Education. It is to be hoped that further success will justify this not inconsiderable material sacrifice.

Regulation of the Working Conditions of Nurses

Complaint has been repeatedly made in the newspapers and general congresses that the pay of nurses is insufficient and particularly that the hours of work are too long. These grievances are encountered not only in hospital service but also in private nursing. As these complaints must be regarded as justified from the viewpoint of physicians, our government has taken the matter up and a collective inquiry with regard to the special conditions in the German Empire has been instituted by the Imperial Department of the Interior. At the same time, measures are being tried which have for their purpose the regulation of the working conditions of nurses. As soon as the investigations are concluded, a general regulation with reference to the beginning and ending of the day and night service will be adopted by the Bundesrat.

Comparative Health Statistics of the Berlin and Paris Garrisons

The superiority of the hygienic conditions of the German Army to those of the French appears again in a report which has recently been published in a French professional journal by a French investigator. Especially, there is an instructive comparison between the health of the Berlin and Paris garrisons. During a recent five-year interval there were 17,503 cases of illness in the Berlin garrison with an average strength of about 66,000 men. On the other hand, in the Paris garrison with a strength of about 45,000 men there were 37,000 cases of illness. In Berlin there were 182 deaths or 0.54 per cent.; in Paris, 516 or 2.3 per cent. A large part of the morbidity in the Paris garrison was due to measles and tuberculosis. The inferior condition of the Parisian garrison is to be attributed to insufficient hygienic measures, of which not the least is the circumstance that the barracks occupied by the garrison are nearly all antiquated buildings.

Housing of Berlin Salespersons

As is the annual custom, the local Krankenkasse of merchants' clerks has again published an extensive report of the housing conditions of the sick policy-holders. In spite of various improvements, the same unfavorable conditions in general were found as in previous years. The dwellings of 13,903 members of the society who were unable to work were investigated during the year. Of these patients, 7,052 live in front houses, 6,851 in rear houses. Of 803 patients who live in rooms having up to 10 square meters of floor space (about 100 square feet), 225 share this space with another person, 106 with two persons, 23 with three, 2 with four and 1 with seven. Over 3,730 patients live in rooms the height of which was not up to the minimum of 2.8 meters (about 9 feet). In 4,777 dwelling-rooms, the air space was not 20 cubic meters per person (about 20 cubic yards). There were 1,524 rooms which had less than 10 cubic meters of air space; this is less than the minimum requirements of the first Prussian housing law. The inspectors found 174 persons who have only 5 cubic meters of air space at their disposal. Moreover, 65 rooms had no windows and 671 patients shared their living-room with five other persons, 348 with six and 297 with more persons.

Among the lodgers, about 14 per cent. were pulmonary invalids and about 7 per cent. suffered from acute infectious disease, which indicates the marked danger of infection from night lodgers. Fully 1,717 patients lived in one-room dwellings (kitchen or sitting-room). Altogether 213 men and 236 women were found who had to share their sleeping-rooms with five and more persons, although they were ill. Of the patients living in families, 344 and of those living in sleeping rooms or furnished rooms, 87 occupied rooms with no provision for heat. In regard to sanitary conditions, 634 had to use a water-closet in common with 16 and more persons. A third of those in the front tenements and more than half of those in the rear tenements had to leave the apartment if they wished to use the closet.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 10, 1913.

Cholera in Austria

In the frontier provinces of the empire sporadic cases of cholera were reported during the first half of this year, but since the war is over and the soldiers are dismissed the disease has been spread over the countries engaged in war and also has been transmitted to us. In Hungary 167 cases have been reported up to the present, while in Austria only forty-nine cases have been discovered. But there is no doubt that we are only at the onset of the attack, and that preventive measures will have to be most stringently used to check its progress. Even in Vienna two cases were found though they have so far remained the only ones.

Medical Subjects in the Meeting of Statisticians

The month of September is really the month of congresses and meetings of societies for Vienna. No less than four take place here this year: the statistical, the pharmaceutical, the congress on first aid, and the congress of German practitioners and scientists. Only the first need be mentioned here. There were some points brought out through papers read in this congress which every medical man should keep in mind. Thus one report dealt with the fertility of marriages in Belgium and France. In all European countries the number of births has gone down rapidly within the last twenty years. This holds good not only of legitimate but also of illegitimate children. Interesting data were brought forth to show that within the first six years of matrimony more wives die than husbands, while after this period more husbands die than wives. No doubt the risks of the first childbirths are responsible for this fact. The average duration of matrimony is twenty-nine and one-third years. Another paper (by Tschuprow of Russia) dealt with the diminishing surplus of boys in the number of legitimate births. In the European countries, all show this tendency. Tschuprow believes that the increase of miscarriages, which is well marked within the last two decades, is responsible for it, for the male embryo is more prone to miscarriage than the female. The statistics for Germany show the same conditions. It was decided to ask the sick clubs and other friendly societies to pay more attention to these occurrences in their statistical reports.

A Pharmaceutical Exhibition

An interesting exhibition is now on view in Vienna which comprises all objects pertaining to pharmacy and apothecaries Apart from the purely scientific exhibits, those dealing with the history of medicine are most instructive. Two collections illustrative of ancient and medieval chemistry and pharmacy were exhibited which show distinctly the progress made in this line within the last half century. Apart from the more than doubtful composition and origin of the majority of the remedies used in those times, the use of drugs half a century ago was attended with a low degree of scientific certainty. A distinct feature of the exhibition is the prominence which is given to the "spas" and health resorts. Hydrotherapeutic and balneotherapeutic measures are indispensable in modern times, and they can thus be easily studied in a variety of applications and activities. A large space is allotted to the radioactive substances which have lately come into so marked a prominence. It is interesting to note, as hitherto, that Austria is still the chief producer of radium (mostly from the pitchblende of Joachimsthal) while the chief buyers are in the United States. A most instructive addition to the exhibits are tables which show the money value of the trades involved in the pharmaceutical business as well as the cost of certain drugs in retail and wholesale quantities. Especially in Austria and Germany, where prescriptions may be made out by apothecaries only, the price of simple mixtures or powders is often in comparison with their cost ridiculously high. This is due to the intricacies of the official price-list which is made out every few years by the government. The friendly societies and sick clubs have appointed a special officer whose duty it is to control the methods of prescription used by the club doctors, and a synopsis of economical prescriptions is issued to the medical officers of the Krankenkassen.

Marriages

WILLIAM D. HAMMOND, M.D., Hagerstown, Md., to Miss Camille Bringhurst of University City, St. Louis, at Alton, Ill., September 16.

LAWRENCE JACOBS QUILLIN, M.D., Streator, Ill., to Miss Ethel Shrimplin of Mount Ayr, Ia., at Warsaw, Ind., September 15.

MARVIN MCRAE SCARBROUGH, M.D., New Haven, Conn., to Miss Mabel Gertrude Sherwood of Bridgeport, Conn., September 6.

GEORGE BALL ROWELL, M.D., San Bernardino, Cal., to Mrs. Louise Schwarz of Los Angeles, at Riverside, Cal., September 13.

PETER PRENTISS CAUSEY, M.D., Wilmington, N. C., to Miss Esther Elizabeth Brewington of Baltimore, September 17.

WALTER A. DEW, M.D., Belleville, Ill., to Miss Mary Wise of Granite City, Ill., at Edwardsville, Ill., September 18.

SAMUEL KENNEDY CHRISTY, M.D., Willshire, O., to Mrs. Elpha Miller of Pleasant Mills, Ind., September 10.

HEILMAN CURTIS WADSWORTH, M.D., Washington, Ind., to Miss Elizabeth M. Beale of Chicago, September 11.

FRANKLIN W. CREGOR, M.D., Indianapolis, Ind., to Miss Gertrude Horn of Valparaiso, Ind., September 24.

EUGENE JULIUS HAMBORSZKY, M.D., Farrell, Pa., to Miss Clara McEllafflin of Lancaster, Pa., September 16.

WILLIAM DAVIS PHILLIPS, M.D., New Orleans, La., to Miss Mary G. Scott of Lexington, Mass., September 9.

JAN JAROSLAV CEPELKA, M.D., to Miss Frances Pacak, both of Chicago, at Crown Point, Ind., September 18.

ALLEN HENRY DUNTON, M.D., Cincinnati, O., to Miss Ava A. Ripley of Minneapolis, Minn., August 28.

GEORGE IVES, M.D., St. Louis, to Miss Loretta Trentle of West Virginia, at St. Louis, August 18.

AHAB HAINES LIPPINCOTT, M.D., to Miss Miriam Lee Early, both of Camden, N. J., September 8.

Charles M. Rickert, M.D., to Miss Sarah Enterline, both of Millersburg, Pa., September 10.

Edward Lyman Cornell, M.D., to Miss Mabelle Jane Cass, both of Chicago, September 16.

John A. Brophy, M.D., to Miss Caroline M. School, both of Philadelphia, September 17.

Deaths

Ephraim Wood Norwood, M.D. Harvard Medical School, 1882; a fellow of the American Medical Association; councilor of the Massachusetts Medical Society; president of the Worcester District Medical Society, and medical examiner of the Ninth District of Worcester County; for many years a member of the school board of Spencer, Mass., and president of the board of trustees of the Hitchcock Free Academy, Brimfield, of which he was principal from 1869 to 1879; died at his home in Spencer, September 11, from heart disease, aged 67.

Robert S. Wallace, M.D. Jefferson Medical College, 1855; a fellow of the American Medical Association; the oldest surgeon in the employ of the Pennsylvania System; also surgeon at East Brady for the Allegheny Valley Railroad; who was given a complimentary banquet by the medical fraternity of three counties in 1907, at which he was presented with a loving cup and was declared to be "the most eminent country doctor in the state;" died at his home in East Brady, September 14, aged 81.

Hugh Sumner Wyman, M.D. Michigan College of Medicine, Detroit, 1882; formerly a member of the American Medical Association; a member of the Washington State Medical Association; for more than a quarter of a century a pracitioner of Alaska and Washington and for several years in harge of the United States Marine Hospital at the Treadwell mines, Alaska; died at his home in Olympia, Wash., September 12, aged 54.

Letcher W. Smith, M.D. College of Physicians and Surgeons, Dallas, Texas, 1906; a member of the State Medical Assoiation of Texas; formerly a practitioner and a member of he board of education and local surgeon for the Texas and New Orleans Railroad at Sacul; was found dead in his room in a hotel in Houston, Texas, September 10, from acute dilaation of the heart following typhoid fever, aged 31.

James Frederick Berlet, M.D. Jefferson Medical College, 877; formerly a member of the American Medical Associaion; resident physician at the German Hospital and visiting hysician to the Foster Home, Philadelphia; at one time a urgeon in the Army; died at his home in Philadelphia, Sepember 14, after an operation for gangrenous diverticulitis, aged 62.

Garland Payne Moore, M.D. College of Physicians and Surgeons, Baltimore, 1886; acting assistant surgeon U. S. P. H. S.; a member of the Medical Society of Virginia; whose last station was at Kobe, Japan, where he was on duty at the American Consulate; died suddenly at sea September 9, while en route to the United States, aged 49.

Henry Franklin Broyles, M.D. Tulane University, New Orleans, 1889; of Greenwood Springs, Miss.; for twenty years a member of the House of Representatives from Monroe County and at the time of his death state senator; was shot and killed in an encounter in which he killed his assailant with an ax, September 16, aged 48.

William Maurice Moore, M.D. University of Missouri, Columbia, 1880; Bellevue Hospital Medical College, 1881; a member of the State Medical Association of Texas; of Paris, Texas; a specialist on diseases of the eye, ear, nose and throat; died at a hospital in Paris, September 9, after a surgical operation, aged 54.

Adolph Hochstein, M.D. Graduate of the Friedrich Wilhelm University, Berlin, in 1870 (license, Michigan, 1900); a fellow of the American Medical Association and for thirty-seven years a practitioner of Kalamazoo; died at his home in that city, September 12, from disease of the stomach, aged 68.

M. Wendell Case, M.D., University of Louisville, Ky., 1851; of Philadelphia; who became a musician after a few years of medical practice and was at one time president of the National Conservatory of Music; died at his home in Philadelphia, September 10, from arteriosclerosis, aged 83.

Calvin Huntley Fitch, M.D. Cincinnati College of Medicine and Surgery, 1878; for several years physician for the Chesapeake and Ohio Railway during the construction period in Virginia; died at the home of his son-in-law in Augusta, Me., August 21, from cerebral hemorrhage, aged 84.

S. T. Davidson, M.D. University of Pennsylvania, Philadelphia, 1854; a Confederate veteran and practitioner of Charlotte Road, Nashville, Tenn., for more than half a century; died in St. Thomas' Hospital, Nashville, August 29, from senile debility, aged 81.

John Archibald McDonell, M.D. University of Buffalo, New York, 1875; a member of the Illinois State Medical Society; professor of surgery in Bennett College of Eclectic Medicine and Surgery, Chicago; died at his home in that city, September 19, aged 66.

Jacob Lorenzo Smith, M.D. Western Reserve University, Cleveland, 1873; a member of the Mississippi State Medical Society and for many years a practitioner of Durand, Miss.; died at the Pontiac State Hospital, September 13, aged 70.

Samuel C. Dunkle, M.D. Kentucky School of Medicine, Louisville, 1881; a member of the Ohio State Medical Association and a resident of Glidden; died in Rochester, Minn., September 11, three weeks after a surgical operation, aged 66.

John D. Armfield (license, Indiana, 1897); a practitioner of Indiana since 1865; one of the organizers of the Elwood State Bank and a member of the board of education; died at his home, September 10, from senile debility, aged 74.

George S. Guernsey, M.D. Vermont Medical College, Woodstock, 1851; a pioneer practitioner of Keosauqua, Iowa, but for five years a resident of Los Angeles; died at the home of his daughter in that city, August 13, aged 91.

Zophar Case, M.D. Washington University, St. Louis, 1875; a fellow of the American Medical Association; for forty years a practitioner of Johnson County, Mo.; died at his home in Warrensburg, September 14, aged 66.

William Worth Bailey, M.D. University of Michigan, Ann Arbor, 1861; a pioneer practitioner of Arkansas; surgeon of volunteers during the Civil War; died at his home in Fort Smith, September 15, aged 72.

John Brainard Carman, M.D. McGill University, Montreal, 1879; a fellow of the American Medical Association; died at his home in Detroit, Minn., about September 13, from staphylococcic bacteriemia, aged 58.

Evan F. Cowger, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; a veteran of the Civil War and for forty years a practitioner of Riverton, Iowa; died at his home, September 4, aged 70.

Hugh Lee Courtright, M.D. St. Louis College of Physicians and Surgeons, 1909; formerly of Kellerville, Ill.; died at the home of his mother in Des Moines, Iowa, September 15, from tuberculosis, aged 28.

Alfred S. Bellamy, M.D. Hahnemann Medical College, Chicago, 1876; founder and president of the Florence (Ala.) Wagon Works; died at his home in that city, August 5, from cerebral hemorrhage.

John Sherer Bardwell (license, Pennsylvania, 1881, as graduate of the American Health College, Cincinnati); for fifty-six years a practitioner of Ridgway; died at his home, September 8, aged 79.

George R. Bartran, M.D. Chicago Medical College, 1872; for thirty-four years a resident of Algoma, Wis.; died at his old home in Smithboro, N. Y., August 27, aged 72.

Amandus N. Fegley, M.D. Jefferson Medical College, 1870; died at his home in Oley, Pa., September 4, from gangrene following an infected wound of the foot, aged 70.

James Edward Cage, M.D. University of Nashville, Tenn., 1868; a Confederate veteran; died at his home in Carmel, Tenn., September 14, from uremia, aged 76.

Nathan Herman, M.D. Louisville (Ky.) Medical College, 1894; died at his home in that city, September 13, from acute gastritis, aged 50.

Thomas B. Lloyd, M.D. Missouri Medical College, St. Louis, 1868; died at his home in Paris, Mo., August 6, from senile debility, aged 73.

Samuel Henderson, M.D. Jefferson Medical College, 1873; died at his home at Franklin, Tenn., August 15, from angina pectoris, aged 62.

Charles H. Eckert, M.D. Fort Wayne (Ind.) College of Medicine, 1889; died in his apartments in Marion, Ind., August 21, aged about 55.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SWINDLING WOMEN

Some Female Weakness Cures and Allied Frauds

A series of scholarly articles on quackery and the nostrum evil appeared in *Vanity Fair* two or three years ago by Mr. Henry Sewill. The author devoted one article to "Quackery for Women" whose opening paragraph ran thus: "Among the victims to quackery of every sort women far outnumber men. They are always more trustful, and, as a rule, find it more difficult, especially when suffering, to believe that anyone can be base enough to abuse their confidence, much less to take advantage of their helplessness in order to plunder and injure them."

The paragraphs which follow were written to complete a pamphlet entitled "Viavi, 'Female-Weakness' Cures and Allied Frauds"[1] which has been prepared especially for the enlightenment of women on the subjects with which it deals. The matter is reproduced here because of many inquiries THE JOURNAL receives from physicians regarding concerns of this sort indicates a demand for information.

Mrs. Ida M. Ade

The Kokomo Medicine Company, of Kokomo, Ind., advertises a "free home treatment for female trouble" under the name of Mrs. Ida M. Ade. Those who write to Mrs. Ade for the treatment get a form letter printed in imitation handwriting. Mrs. Ade recommends the recipient of her letter to order a 30-day "Vitopian Home Treatment," put up by the Kokomo Medicine Company. By the same mail, a stock letter and a small box containing a few pills and two vaginal suppositories comes from the Kokomo Medicine Company. The letter gives the price of the 30-day treatment as $3.50, but states that, on Mrs. Ade's urging, they "have decided to allow you the regular wholesale discount," which will bring the price down to $3. The whole scheme is a typical mail-order medical fraud.

Alpen Seal

Mrs. Georgia Palmer, of Chicago, advertises that she will send a "free prescription" for the relief of women's ailments. Those who write receive a letter printed in imitation handwriting. The "prescription" is printed in imitation typewriting on a prescription blank of George E. Flood, M.D., 79 Dearborn Street, Chicago. The "prescription" contains three items: Water, Fluid Extract of Black Haw and "Alpen Seal." The joker, of course, lies in the "Alpen Seal," which is a "patent medicine" put on the market by a concern calling itself the Alpen Chemical Company. Dr. George E. Flood of 79 Dearborn Street may also be found in nostrum literature as the writer of a testimonial for a fake bust developer put out by the Aurum Medicine Company, also of 79 Dearborn Street. "Alpen Seal" is also advertised by the "prescription fake" method in those newspapers that are not above sharing the profits of frauds of this type.

Atlanta Remedy Company

The Atlanta Remedy Company of Atlanta, Ga., is another branch of the W. M. Griffin fakery with headquarters at Fort Wayne, Ind. (See the article on Bertha C. Day.[2] Dr. Lily M. Norrell is the stool-pigeon in this case. The methods employed are practically identical with those used in the Bertha C. Day concern: the regular system of follow-up letters, "free proof treatment," testimonials and a 144-page booklet, entitled "Health at Home for Women." This booklet is said to be "published by the Atlanta Remedy Company, Atlanta, Ga." Except for the first eight pages, which describe Dr. Lily M. Norrell, "Medical Director, Atlanta Remedy Co.," the book is printed from the same plates as, and is identical with, the one issued by the "Woman's Remedy Company," San Francisco, another of Griffin's fraudulent mail-order medical concerns. As in the case of the Bertha C. Day concern, those who write to the Atlanta Remedy Company for the free trial treatment also have saddled on them a so-called "special treatment," which is sent at the same time as the trial treatment. For the latter, the victim is asked to pay $2 or $2.50. The value of this treatment may be gathered from the fact that if the victim refuses to accept it, the company does not consider it worth while sending the three cents postage necessary for its return. The business is essentially as fraudulent as that of its prototype, the Bertha C. Day Company.

Mrs. F. Beard Company

The Mrs. F. Beard Company, of Dayton, O., advertises in the classified columns of the newspapers, thus:

> "Ladies—Send 25 cents; catalogue Secrets for Women and box Dr. Baird's remedy. Safe, speedy, regular."

Those who send 25 cents receive a batch of advertising of the remedies of the F. Beard Company, and a small wooden box containing some black pills. The label on the box refers the recipient to a red circular sent in the letter. This circular urges the woman to "send immediately for Superb Pills No. 3," if the sample in the wooden box "does not bring about the monthly flow." According to the leaflet, "Superb Pills No. 3 are a new departure, being made triple strength." They are "made expressly for long-standing and aggravated cases." If taken each month "ladies will find themselves always regular," thus "saving them from worry" and pain. And the reader is told that "these pills should be used every month as a preventive of irregularities." Five dollars a box is asked for this unmitigated fraud. In addition to the nostrums, the company also sells various "rubber goods."

Dr. Charlotte Christopher

Dr. Charlotte Christopher operates—or did operate—a mail-order medical concern at 7 E. Randolph Street, Chicago. "This famous lady specialist" has "time after time taken cases pronounced hopelessly incurable by the medical profession and restored the patients to health in a most phenomenal manner"—she says so, herself. Dr. Christopher also said, in an advertisement published in a Chicago paper in 1910, that "after years of successful practice," she "decided to devote her future time to the relief of suffering women." Dr. Charlotte Christopher graduated from a low-grade Chicago medical college in 1907, so that the "years of successful practice" dwindle down to a paltry three—and these, evidently, were not "successful" or she would not be in the fraudulent mail-order medical business. Dr. Christopher, like most mail-order medical fakers, offers to send a free treatment to those answering her advertisement. Those who send for it receive a small box containing three different kinds of tablets: "Tonic," "Newlife," and "Healthtone." They also receive a request to send five dollars for the "full two months' treatment." The usual follow-up letters come to those who do not bite; she has a sliding scale of prices common to charlatans of this sort. Later follow-up letters indicate that Dr. Charlotte Christopher's business was succeeded to by the Newlife and Healthtone Co., Chicago, which, in turn, is said to be owned by the Panter Remedy Co, which operates a mail-order cure for syphilis ("blood poison").

Hager Medical Company

The Hager Medical Company, South Bend, Ind., is said to be owned by George L. Hager, who is president of the company, with A. M. Hager, treasurer, and J. L. Midgley, secretary. "Oak Balm" seems to be the most extensively exploited of the Hager concern's frauds, although it also puts out other products including "Fibroma Unguent," which the company advertises, by inference, as a cancer cure.

---

[1] This pamphlet sells for 6 cents.

[2] The exposé of the Dr. Bertha C. Day Company appeared first in THE JOURNAL, April 1, 1911; it has been reprinted in pamphlet form (price 4 cents) and also appears in full with later notes, in "Nostrums and Quackery."

Margaret M. Livingston

Margaret M. Livingston, M.D., of Chicago, advertises in the "personal" columns of newspapers as a "specialist for diseases of women." Those who write for the "free booklet" which she offers to send, receive, in addition to the pamphlet lauding Dr. Livingston and her methods, some printed slips describing various nostrums she has for sale. Two or three years ago Dr. Livingston seems to have been connected with a concern called the Central Health Institute which sold "For-Me-Ka Oil, Vitality Tonic Remedies." The incorporators of the Central Health Institute were, in addition to Dr. Livingston, Edith B. Lowry, O. A. Livingston and R. J. Lambert. The Chicago papers of November 21, 1912, reported the arrest of a number of persons throughout the country on the charge of misuse of the mails to solicit criminal medical practice or to dispose of medicines and instruments connected with such practice. Dr. Margaret Livingston's name was one of the twelve listed of those arrested in Chicago.

Orange Blossom Suppositories

Orange Blossom Suppositories are put on the market by J. A. McGill, M.D., Chicago. Since the Food and Drugs Act went into effect, the "Orange Blossom" part of the advertising has been less pronounced; also, many of the most evident falsehoods have been toned down, although there are still plenty. A product answering to this description was subjected to analysis by the chemists of the British Medical Association. They reported that "Orange Blossom Specific for Uterine Diseases," claimed to be "the invention of a Chicago doctor," had for its principal constituents alum and boric acid, the base being principally soft paraffin. Orange Blossom Suppositories are said to be "a noble remedy" for "cancers in their earlier stages." Incidentally, McGill puts out a "Famous Cancer Salve" and also a "kidney and bladder cure" which "never fails to cure any form of Bright's disease, diabetes," and various other conditions. Each is a fraud.

Phen-ix Chemical Company

The Phen-ix Chemical Company of Warsaw, Ind., sells "Anti-seps—a modern female remedy," "Stargrass Compound—Nature's tonic for women," "Phen-is-ine Nerve Vitalizers" and "Earl's Kidney and Bladder Pills." The concern advertises in the classified columns of newspapers and by means of display advertisements. The claims are fraudulent.

Harriet M. Richards

Mrs. Harriet M. Richards is the name under which the Woman's Mutual Benefit Company of Joliet, Ill., reaches its dupes. The advertisements of this concern are familiar to those who glance through the pages of some of the cheaper weekly magazines. "Mrs. Richards" offers to send her "sister woman" a "fifty-cent box of Balm of Figs Compound" which "will not cost her one cent." The woman who writes for the "free treatment" receives a small cardboard box containing two vaginal suppositories and a stock letter urging her to use them. With the letter is the usual "scare" booklet describing the dire effects of the various sexual ailments to which women are subject and telling of the wonderful cures that "Balm of Figs" has effected in all diseases of this sort. A day or two after receiving the "free trial treatment," another stock letter comes and with it a "regular-size" box of Balm of Figs suppositories, for which two dollars is asked. This box costs two cents to mail and, so far as we know, the company never sends those who refuse to accept it the two cents necessary for its return. The value of the contents is evident.

A cursory examination of Balm of Figs was made in the Association's laboratory and the results indicated that the nostrum is a mixture of borax, alum and linseed oil made into a paste. If the recipient does not send the two dollars, she receives at intervals "follow-up" letters of the usual type. As an additional inducement she is told that if the two dollars is sent "one of our splendid fountain syringes" will be sent free. The concern also handles other "patent medicines" and, as a side-line, "sanitary belts," and "skirt supporters." While the Harriet Richards concern professes to keep "all correspondence of whatever nature" confidential and private, as a matter of fact thousands of letters that have been written to the concern are on sale at letter brokers. The thing is an unmitigated fraud.

Sanova Company

Sanova is said to be a "famous specific" for "female weakness" and is put up in the form of vaginal suppositories. Under the caption "Why Men Desert Their Wives," the Sanova Company, Toledo, O., urges women to use their nostrum and thus "command the happiness and pleasures which all women are intended to enjoy." The concern sends out booklets of the "scare" type; it also sells other "patent medicines" as well as a "Ladies' Syringe." Works the "free-trial treatment" dodge.

Dr. Southington Remedy Company

The Dr. Southington Remedy Company of Kansas City, Mo., publishes in such newspapers as will accept them advertisements to this effect:

> "Ladies—$1,000 reward. I positively guarantee my great successful 'monthly' remedy. Safely relieves some of the longest, most obstinate abnormal cases in three to five days."

Those who write for information regarding this advertised abortifacient are sent a stock letter and a booklet telling of the wonderful results of taking "Dr. Southington's Ergo-Kolo Female Compound for Women Only." The price of this "regulating compound" is $1.50 a package "single strength," but the "double strength," which is recommended "for more obstinate cases," costs two dollars. The thing is an indecent fraud.

Mrs. M. Summers

Almost every one who has looked over cheap magazines and not-too-particular newspapers has seen the "Free to You—My Sister" advertisements put out under the name of Mrs M. Summers, South Bend, Ind. Mrs. M. Summers is the name under which Vanderhoof & Company exploit a fraudulent mail-order "female-weakness cure." Like Mrs. Harriet M. Richards, Mrs. Summers offers to send a "free trial" of her "home treatment." Those who write for the "free treatment" receive some "Opaline Suppositories" for vaginal use. Since the Food and Drugs Act ("pure food law") has been in effect, the Vanderhoof concern has had to declare the presence of opium in its suppositories, each suppository containing 1⅔ grains of this drug. With the suppositories, "Mrs. Summers" sends a sample of her "Compound Antiseptic Powder for Ladies." This antiseptic powder is for the "cure," among other things, of "suppressed menstruation." From the testimonials regarding this powder we take the following, alleged to have been sent in by a married woman:

FREE TO YOU—MY SISTER
Mrs M. Summers, Box H, Notre Dame, Ind., U. S. A.

> "I had not been unwell for four months before commencing your treatment, and after using it two weeks, I came around all right and have been regular ever since. . ."

Also, Vanderhoof & Co. sell "Vigor of Life." This is said to be a marvelous cure for women who have lost the "personal magnetism" and other "attractive attributes" that go with a "thoroughly developed and strong nervous organism." It is also good, we are told, "for women whose nervous organism peculiar to the sex has never fully developed." "Vigor of Life supplies that which is" necessary to "make the marital relations harmonious and complete." Furthermore, this wonderful product "prevents the insidious approach of failing manhood"—all this for one dollar a box. These and many other fakes emanate from the Vanderhoof fraud factory.

Incidentally, "Mrs. Summers' Harmless Headache Powder" has been declared misbranded under the Federal Food and Drugs Act ("pure food law"). Instead of being harmless, the United States authorities declared that it was "in truth and in fact injurious to health." A plea of guilty was entered and a fine imposed.

The Woman's Remedy Company

Dr. Grace Feder Thompson, "Specialist to Women, Medical Director," is the stool-pigeon in charge of the Woman's Remedy Company, San Francisco. This is another of the W. M. Griffin frauds, similar in scope to that of his older fraud, Bertha C. Day. The method of operation seems to be identical with that of the Atlanta Remedy Company and the booklet it sends out is, with the exception of the first few pages, printed from the same plates. The booklet in this case is entitled "Woman's Home Health Book," said to be "published by the Woman's Remedy Company, San Francisco, California." The Woman's Remedy Company sends to those who write for the "free-trial treatment" a "full and complete course," for which three dollars is asked. Those who do not swallow this bait receive a series of follow-up letters, each one more insistent than its predecessor, urging that the money be sent. If these, too, are unanswered, the concern comes down in price, but does not send the three cents necessary for the return of the three-dollar treatment.

Vis-Vitæ Medicine Company

The Vis-Vitae Medicine Company of Toledo, Ohio, sends a "free trial treatment" consisting of tablets for vaginal use. Uses the follow-up system in keeping after its victim. It is a somewhat paltry and insignificant swindle.

THE NEW ORLEANS "ITEM"

This Paper Makes New Rules for the Acceptance of Medical Advertising

The New Orleans *Item* put into effect October 1 a new set of rules governing the acceptance of advertising, with particular reference to medical "copy." The matter is commented on editorially in this issue. Here are the rules:

The New Orleans *Item* declines to accept advertising on any of the following class of articles or services:

1. Books, pictures, "rubber goods," or other devices or services, where the name of the device or the wording of the copy conveys, either directly or inferentially, that the article or service is of obscene, illegitimate, or questionable nature.
2. Medicines or methods for the cure or relief of diseases peculiar to women. This rule bars any copy containing such words or expressions as "women's diseases," "women's complaints," "ladies' friend," "tansy," "pennyroyal," "regulator," "preventive," and the like, and in general any verbiage that may be considered by the *Item* to be similarly offensive.
3. Medicines, methods, or devices for the cure or relief of diseases peculiar to men. This rule bars any copy whatever containing any such words or suggesting any such ideas as "lost manhood," "sexual weakness," "exhaustion," "impotence," "nocturnal emissions," "unnatural discharges," "gonorrhea," "impure blood," "syphilis," "gleet," "varicocele," and the like, or any copy that suggests them.
4. Medicines or mechanical devices that purport to "enlarge the bust," to "improve the figure," to make the fat thinner or the thin fatter, to restore hair to bald heads, change ugly complexions into beautiful ones, and, in general, to perform any other feats that are impossible or may be dangerous. It is not intended to bar toilet preparations of harmless composition, or legitimate massage devices that are truthfully advertised.
5. Any medicine that claims to cure or relieve diseases commonly held by medical science to be incurable in this way, such as tuberculosis, cancer and the like. This rule bars reference to such diseases by expressions designed to suggest them, such for instance, as "lung trouble" for consumption. This rule also bars indirect claims of cure or relief of such conditions, through testimonials or otherwise.
6. Any medicine that claims to cure or relieve any disease or injury whatever. This refers to *diseases*, not to *conditions*, such as constipation and the like, and does not bar harmless cathartics and other such remedies, when truthfully advertised.
7. Any medical treatment offered free.
8. Any advertisement not falling itself within the prohibition of these rules but leading to correspondence between advertiser and reader in which the principle of these rules is violated.
9. Any medicine containing a habit-forming drug of the dangerous class — opium or its alkaloids, cocain, heroin, chloral and the like. This rule bars preparations in which alcohol is present in quantities larger than pharmaceutical compounding requires and thus becomes one of the active agents, or the sole active agent, in the mixture. This clause, however, will not apply to "bitters" commonly known for their alcoholic content.
10. Medicine containing useful drugs or chemicals harmless in many cases, but potentially dangerous when indiscriminately administered — acetanilid and the like. Debatable cases of this sort will be settled in the discretion of the *Item*.
11. Any sort of text or illustration offensive to good taste, either in character or in appearance. This applies to all the class of grotesque, bizarre, or horrible pictures and expressions calculated to shock the reader into attention.
12. Copy that simulates in type, arrangement or otherwise, the *Item's* own reading matter.
13. Financial or commercial schemes or enterprises that the *Item* has reason to believe are fraudulent, or unsound, or exaggerated.

Correspondence

Serodiagnosis of Pregnancy

To the Editor:—The main difficulty so far in the serodiagnosis of pregnancy has been the danger of bacterial contamination. I have had no trouble since using the following precautions: 1. The prepared placenta is kept in distilled water containing a few drops of chloroform and a layer of toluol. Just before use a small piece of placenta is removed and boiled in a small quantity of distilled water. This insures sterility and also removes any chloroform present.

2. When ready the dialyzers are lowered into ordinary hydrometer jars without lips. After toluol has been added to the dialyze and the water, the jar is tightly corked. There is almost no evaporation.

3. Immediately after use the thimbles are thoroughly washed in running tap-water and drained by inverting them on a sheet of filter-paper. Just before use they are again washed and boiled in distilled water for three minutes.

S. L. Cherry, M.D., Clarksburg, W. Va.

[Comment.—The importance of such careful, aseptic technic has been emphasized repeatedly by Abderhalden and his pupils. We have commented on this subject previously. (The Present Status of Abderhalden's Serodiagnosis, editorial, The Journal, Aug. 16, 1913.)—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CARUNCULAE MYRTIFORMES

To the Editor:—In The Journal, Aug. 30, 1913, p. 704, answering "Subscriber," you say: "The carunculae myrtiformes are the results of labor and not of the rupture of the hymen." Who told you so? Gray, Cunningham, Dorland's dictionary, McClellan's "Regional Anatomy" all say that the remains of the ruptured hymen are called "carunculae myrtiformes." Gerrish and Morris say practically the same, and none of them say that the carunculae are the result of labor.

C. W. Courtright, Chicago, Ill.

Answer.—"The hymen is usually torn at the first coitus, sometimes by gynecologic examinations or by masturbation. It is partially destroyed in labor, the remnants persisting as isolated protuberances around the vaginal orifice—the carunculae myrtiformes." Hirst: "Obstetrics," Ed. 7, p. 43, 1912.

"As a result of the distention incident to the birth of the child, the hymen undergoes pressure necrosis in various places and after the puerperium the remnants are represented by a number of cicatricial nodules of varying size—the carunculae myrtiformes. Practically speaking they are infallible signs of previous child-bearing, though occasionally they may follow the marked distention and long-continued pressure incident to the removal of large tumors through the vagina." Williams: "Obstetrics," Ed. 3, 1912, p. 33.

"Usually the hymen is more or less lacerated at the first coitus. Almost without exception it is obliterated at parturition. Thereafter nothing remains of it but fleshy tags attached about the entrance to the vagina. These are called carunculae myrtiformes. From a medicolegal point of view the absence of a hymen furnishes *prima facie* evidence only of sexual indulgence . . . On the other hand carunculae myrtiformes are undeniable evidence of a former parturition." Jewett: "Practice of Obstetrics," Ed. 2, p. 23.

Other authors could be quoted, including writers of books on legal medicine, toxicology, etc.

SHOULD THE OCULIST DISPENSE HIS OWN GLASSES?

To the Editor:—In this community it has become quite an issue to decide whether or not the oculist should dispense his own glasses. In this large city, with probably twenty opticians, only one of this number has a mechanical knowledge of the proper adjustment of frames. What we desire of the opticians is that they be able to adjust frames properly, but they do not seem to realize the importance of this.

Are the opticians the friends of the oculist or are we sending our prescriptions into the hands of the enemy? Do they find fault with the prescriptions? Do they at times alter them and have our patients call on them when changes in lenses are needed?

It is a fact that in many communities the oculist receives a percentage on his eye-glass prescriptions; others own their own stone, etc. The country practitioners desire a knowledge of frame-fitting. They are compelled to sell the glasses. Most postgraduate schools are not prepared to teach adjustment. Why not? I would like your opinion on this subject. Oculist, New Orleans.

Answer.—In the following reply the term "oculist" is used for "ophthalmologist," "ophthalmic surgeon," "physician," "doctor," etc.

This is a question that cannot be positively answered "yes" or "no," in the sense that one would be altogether right and the other entirely wrong. A number of considerations must be taken into account which have an important bearing on the question.

The oculist at present as a rule has had little or no practical instruction in the field of mechanical optics. He generally has a greater or less knowledge of physiologic optics, but even possessing an acquaintance with the mechanical part of the fitting of glasses, he would not have the time—unless his practice was very limited—to do this work properly, together with his other duties. The optician in his field is a specialist just as much as the oculist, and the work of each should be in the best interests of all concerned, entirely distinct and separate; but this is a world of compromise, and it happens that in this matter, as in most things, we are often obliged to do not what is evidently the best, but the next best; consequently in this matter of optician and oculist various compromises are adopted.

The size of the population is an important consideration. Many of the smaller cities have no competent opticians, as they could not make a living. In such cases the oculist is obliged to dispense his own glasses. Hence he should have a fair knowledge of mechanical optics and the adjustment of glasses, and should see that the lenses are properly centered, the interpupillary distance absolutely correct both for distance and near, the angle of the "bridge" correct, etc. In other words, he must do the principal part of the optician's work, and for this he is entitled to compensation additional to his regular fee for professional services. The optician who fills his prescription, perhaps in a city some distance away, may rightly allow the oculist a certain discount on the catalogue prices of his materials, which is entirely different from offering him a commission for business sent him.

On the other hand, in larger cities, in which there are generally many opticians, competition and rivalry are naturally keen. The oculist who fits his own glasses selects the optician of his choice, who in turn regards the oculist as a wholesale customer and charges the wholesale rate for his goods. The patient has no more reason to expect to get glasses at wholesale rates than he has to get his food or clothing in this way. When the oculist sends a patient away with a prescription for glasses, he must remember that his full duty to the patient and to himself has not been discharged. The patient must be requested to return to the office with the glasses so that the oculist may see for himself that the prescription has been accurately filled. This should be an invariable rule with every oculist. If the glasses are incorrect in any way, either through incompetence or from intentional alteration of the prescription, it would justify the oculist in warning his patient against the optician responsible for the error.

The best plan of all and one that would give patient, oculist and optician the greatest satisfaction, where the amount of refraction work is large enough, is for the oculist to employ his own optician as a part of his office force, and when glasses are prescribed to transfer the prescription directly to the latter. In this way the patient is not allowed to leave with the glasses until they have been thoroughly tested by both the optician and the oculist. This plan has been successfully adopted by a number of the leading oculists of the country.

In regard to the teaching of mechanical optics, it is extremely doubtful if, in the already crowded curriculum of the regular four-year course, such a branch could be added. In fact, it would be impracticable and undesirable. In postgraduate courses, however, it could and should be introduced. It would undoubtedly be a popular course, as there are always young oculists preparing themselves to settle in small communities in which refraction work will constitute the largest part of their practice and where, willy nilly, they will be obliged to dispense their own glasses. To do this intelligently, they must first have competent instruction to do the proper work of the optician. If such a course as this were introduced, it would, before long, do much toward eliminating many of the "refractionists" and "optometrists" whose knowledge is limited exclusively to the simple mechanism of refraction, but who are absolutely ignorant of the physiologic conditions or the possibilities of pathologic changes of importance. In other words, it would mitigate the present evil of oculists trying to be opticians and of opticians posing as oculists.

IS THE JOURNAL'S ADVERTISING POLICY CONSISTENT?

To the Editor:—In the Queries and Minor Notes department for Sept. 20, 1913, is an article on "another consumption vaccine." I see in the advertising section an advertisement for Dr. Sherman's vaccine and book. Now I have been tempted to send for this book *because it was advertised in The Journal*, but if he is exploiting a questionable cure for tuberculosis, may not his book be lacking in authority? Kindly state if you think it good.

M. M. S., Tacoma, Washington.

To the Editor:—In The Journal, Sept. 20, 1913, appears the enclosed advertisement; on page 979 of the same issue you have a scathing criticism of Sherman's consumption vaccine. Does this seem consistent? I am sorry to say that through this advertisement in a previous number of The Journal I was led to buy "Vaccine Therapy in General Practice" by Sherman. I would not buy it again should I be deprived of this copy, nor would I recommend it to others. Further comment unnecessary.

C. G. Menninger, M.D., Topeka, Kansas.

Answer.—Dr. Menninger's enclosure is an advertisement that The Journal has carried of the book "Vaccine Therapy in General Practice," by Sherman—the same Sherman that puts out the "Non-Virulent Tubercle Bacillus Vaccine," criticized recently. Dr. Sherman's book deals very optimistically with the subject it covers. With much of the matter it contains The Journal disagrees; much, however, is based on fairly well-substantiated scientific evidence. So far as the Sherman products themselves are concerned, some The Journal considers unscientific and open to serious criticism; others have been passed on and accepted by the Council on Pharmacy and Chemistry. Such of the Sherman products as are open to criticism, The Journal will criticize when it seems necessary; such of the Sherman products as are acceptable to inclusion in New and Nonofficial Remedies should be acceptable to The Journal's advertising pages. We see nothing inconsistent in this. The censorship of advertising is a complex problem; how complex, only those know who are brought face to face with it daily. That, in meeting this problem, The Journal never publishes advertisements that can justly be criticized is not claimed. Being human, those who manage The Journal are just as subject to error as the other fellow. It is believed, however, that there are few, if any, publications that exercise as great care in the acceptance of advertising as does The Journal of the American Medical Association.

VERMUTH

To the Editor:—What is Vermuth? I found in a German encyclopedia that it was a decoction of *Absinthia artemesia* [*Artemisia absinthium*] or wormwood in a wine. If this is true the public at large should know it. It is used in most "cocktails." If this is true it should also be kept out of the country as is absinthe.

Frank A. Glasgow, M.D., St. Louis.

Answer.—Most of the Vermuth, we are told, is obtained by macerating a mixture of herbs, among them wormwood, for a short time with an ordinary cheap Italian wine. The product so obtained, we understand, is fortified with alcohol so as to produce a product containing from 15 to 17 per cent.

of alcohol, this being practically the alcoholic strength of port wine or sherry wine. The following statement in reference to French Vermuth is taken from the *Proceedings of the American Pharmaceutical Association*, 1900, p. 448:

> "Vermuth"—Composition and Preparation.—According to a U. S. Consular Report (1899, 60 (227), 599), the production of "Vermuth" in France is almost entirely confined to Marseilles. The ingredients employed in making an extract, which, when added to wine, forms the "Vermuth," are exemplified in the following formula: alcohol, 90 per cent., 8 liters; coriander seed, 800 gm.; Greek nuts, Peruvian bark, and sweet flag, each, 200 gm.; wormwood, sharp, and Roman wormwood, each, 720 gm.; sweet marjoram and yarrow, each, 180 gm.; rose leaves, clover and Ceylon cinnamon, each, 100 gm.; dittany and angelica seed, each, 50 gm.; hyssop, 150 gm. These are digested for eight days at 120 F., then warmed moderately over a slow fire for twelve hours, the solids removed by expression, and the liquid filtered. The extract so obtained is added to wine as desired, the alcoholic strength of the "Vermuth" so produced being from 15 to 17 per cent.

The amount of wormwood contained in these preparations is probably very slight. The ruling prohibiting the importation of absinthe has not been applied to Vermuth, probably because there is not sufficient wormwood present.

WRIGHT'S STAIN—KUHNE'S ANTIRHEUMATIC REMEDY

To the Editor:—1. Kindly give me the best method in detail to make a differential stain of blood-smears with Wright's stain.

2. Can you tell me what Kuhne's antirheumatic remedy contains? It is made in Chicago.

H. J. FRIESEN, M.D., Gretna, Manitoba.

ANSWER.—1. This subject was fully considered in an article by Wright, THE JOURNAL, Dec. 3, 1910, p. 1979. Specimen smears should be fixed before using Wright's stain. The best method of fixation is the hot copper plate introduced by Ehrlich. This method is described in any of the books on diagnostic methods. For ordinary use, Engel and Cabot, in the absence of other equipment, recommend passing the smear through the flame of a Bunsen burner several times. This often yields excellent results, but is somewhat uncertain. The technic is as follows: Cover the film with a definite quantity of the staining fluid by means of a medicine-dropper. After one minute add to the staining fluid on the film an equal amount of distilled water, so that the surface assumes a metallic luster. Allow this mixture to remain for two or three minutes. Wash the preparation in water until the thinner portions become yellow or pink in color. Just when to stop washing must be determined to a great extent by the experience of the worker. When the desired amount of differentiation is reached, dry the specimen between filter-papers and mount.

2. Kuhne's rheumatic remedy has not been examined by our laboratories. From the type of advertising matter issued by this company, the product would appear to be fraudulent.

DUPUYTREN'S CONTRACTION

To the Editor:—A case for diagnosis: A man, aged 55, American, married, barber, says he has never had any sickness to amount to anything, has not missed a Saturday in all the years he has followed his trade and still enjoys good health. Several years ago he bruised or sprained the flexor tendon of the third finger of his right hand. A gradual contraction of the tendon in the palm ensued which has progressed until now the first joint is bent at right angles and cannot be extended, although flexion beyond that point is possible. Since that injury and without any knowledge of injury to the other hand, similar contractures have begun in the palmar portions of the flexor tendons of the left second, third and fourth fingers. Hard, smooth nodules are palpable along these tendons as far as the wrist, and the skin over these nodules seems to be adherent to the tendons. Occasionally he has attacks of aching pain in the hands which will awaken him at night. What is it?

X. Y. Z.

ANSWER.—This case is undoubtedly one of Dupuytren's contraction. The contracture and the nodules mentioned are not in the tendons, but in the palmar fascia.

EMBOLISM AS CAUSE OF DEATH

To the Editor:—Can you furnish me with any reprints or information on sudden death following a compound fracture of both bones of the leg, probably due to embolism?

A. E. DALE, Danville, Ill.

ANSWER.—In 1884 Fourney and von Recklinghausen first noted fat embolism as a cause of death by plugging the pulmonary capillaries. Free fat can frequently be found in the urine during the first two or three days after fracture. It is reasonable to suppose that it comes from the lacerated bone-marrow entering the circulation either directly through the torn surface or by way of the lymphatics. The symptomatology is not at all clear. On necropsy, edema of the lungs and extensive plugging of the pulmonary capillaries with free fat are found. Symptoms usually begin within twenty-four hours after the injury; rarely after two or three days.

It is the opinion of Brouardel, author of one of the very few books on the causes of sudden death, that these fat emboli are often produced by putrefaction due to micro-organisms. The larger books on surgery, particularly Stimson's "Fractures and Dislocations," give complete discussions of this subject.

REFERENCES TO FATALITIES FROM EXCESS OF ATHLETICS

To the Editor:—Please give me information concerning fatalities caused from excess of athletics.

J. L. FIELDS, M.D., Elora, Tenn.

ANSWER.—The following is a list of references on the general subject. Some of the articles may refer to fatalities:

Athletics and Health, editorial, THE JOURNAL, Feb. 8, 1913, p. 446.
Bavarian Research on Effects of Athletics, THE JOURNAL, March 22, 1913, p. 917.
College Athletics in After Life, THE JOURNAL, Jan. 25, 1913, p. 300.
A Further Report on Athletics and Health in the Navy, editorial, THE JOURNAL, Jan. 11, 1913, p. 131.
Effects of Strenuous Athletics in the Navy, THE JOURNAL, Jan. 6, 1912, p. 40.
Friedman, H. M.: Muscular Development, the Causes for the Lack of It, and the Value of Physical Exercise, THE JOURNAL, March 9, 1912, p. 685.
Jundell, I.: Prognosis of Chronic Overexertion of Heart in Athletics, *Nord. Med. Ark.*, 1913, xlv, Med. Sec. No. 3; abstr., THE JOURNAL, June 7, 1913, p. 184.
Torgersen, P.: Competitive Athletics and the Physician's Responsibility, *Norsk Mag. f. Laegervidensk*, January, 1913.
Grober, J. A.: The Heart and Competitive Athletics, *Med. Klin.*, Jan. 19, 1913.
Henschen, S. E.: Athletics and Dilatation of the Heart, *Nord. Med. Ark.*, 1913, xlv, Med. Sec. 2.
Coughlin, R. E.: Deaths of Athletes and Fatalities in Athletic Games During 1910, *New York State Jour. Med.*, August, 1910.

LITERATURE ON OCCUPATIONS AND REEDUCATION OF THE INSANE

To the Editor:—Please give references to literature on occupations and reeducation of the insane.

READER.

ANSWER.—The following may be referred to:

Zeller, G. A.: More Work and Recreation for the Chronic Insane, *Kansas City Med. Index-Lancet*, October, 1910.
Cohn, E.: Systematic Occupation and Entertainment of the Insane in Public Institutions, THE JOURNAL, April 18, 1908, p. 1249.
Barrus, Clara: Nursing the Insane, Macmillan Co., New York, 1908. (This book has a chapter on the occupation and amusement of patients.)
Havilard, C. F.: Occupation for the Insane, *Am. Jour. Insanity*, January, 1913; abstr., THE JOURNAL, Feb. 15, 1913, p. 551.
Ricksher, C.: Occupation in Treatment of Insane, *Illinois Med. Jour.*, April, 1913.
Wiest, Anna: Beschäftigungsbuch für Kranke und Rekonvalescenten, published by Enke, price, 5 marks.

URIC ACID

To the Editor:—Please name the diseases in which uric acid plays a definite rôle.

H. J. LEHNHOFF, M.D., Lincoln, Neb.

ANSWER.—Uric acid is generally held to have some relation to the pathogenesis of gout. Urates are deposited about the joints in this disease, and in the early part of a gouty attack the excretion of the urates into the urine is less than the average. At a later stage a larger quantity than normal is generally excreted. It is not settled, however, that uric acid plays an etiologic rôle in the case of gout. No definite relation of uric acid to other diseases has been established.

LEAD-POISONING

To the Editor:—In a recent number of THE JOURNAL, Sept. 6, 1913, p. 773, reference is made to an article on lead-poisoning found in Bulletin 85, Bureau of Labor, Washington, 1911. I have obtained a copy of Bulletin 85, which is, however, published in 1909, but can find no such article on lead-poisoning in it.

J. W. LUTHER, M.D., Palmerton, Pa.

ANSWER.—The reference should be to Bulletin 95 instead of 85.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas, Phoenix.

COLORADO: State Capitol, Denver, October 7. Sec., Dr. David A. Strickler, 612 Empire Building.

DISTRICT OF COLUMBIA: Washington, October 14-16. Sec., Dr. George C. Ober, 125 B St., S. E.

GEORGIA: Regular, State Capitol, Atlanta, October 14. Sec. Dr. C. T. Nolan, Marietta; Eclectic, State Capitol, Atlanta, October 14. Sec., Dr. C. W. Miller, 192 W. North Ave.

IDAHO: Boise, October 7. Sec., Dr. John F. Schmershall, Jerome.

KANSAS: National Hotel, Topeka, October 14. Sec., Dr. H. A. Dykes, *Lebanon.*

LOUISIANA: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 34 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

MICHIGAN: Capitol Bldg., Lansing, October 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: University of Minnesota, Minneapolis, October 7-10. Sec., Dr. Thomas S. McDavitt, 814 Lowry Building, St. Paul.

MISSISSIPPI: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

MONTANA: State Capitol, Helena, October 7. Sec., Dr. Wm. C. Riddell, Helena.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: State House, Trenton, October 21-22. Sec., Dr. H. G. Norton, 429 E. State Street.

NEW MEXICO: Santa Fe, October 13. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Muskogee, October 14. Sec., Dr. John W. Duke, Guthrie.

UTAH: Salt Lake City, October 6-7. Sec., Dr. G. F. Harding, 310 *Templeton* Building.

WYOMING: State House, Cheyenne, October 15. Sec., Dr. J. B. Tyrrell, Laramie.

Michigan June Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination, held at Ann Arbor, June 10-12, 1913. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 in each subject. The total number of candidates examined was 53, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Med. and Surgery	(1913) 84.4, 84.2,	87
Bennett Medical College	(1913)	88.9
University of Illinois	(1913) 81.7,	83.5
Boston University	(1899) 86; (1912)	85.5
University of Michigan, Homeopathic College	(1913) 78.6, 80.3, 82.9, 83.5, 84.4, 84.4, 85.4, 85.9, 86.5, 88, 88, 90.2, 90.9.	
University of Michigan, College of Medicine and Surgery	(1912) 81.9; (1913) 78.2, 79, 79.5, 80.1, 81.3, 81.4, 82.7, 83.7, 82.7, 83.8, 84.3, 84.5, 84.5, 85, 85.1, 85.2, 85.5, 86.1, 86.5, 86.8, 87, 87.2, 87.3, 87.4, 87.6, 88, 88.2, 88.7, 89.4, 89.4	
McGill University, Montreal	(1913)	87.5

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1882)	Illinois
Pulte Medical College	(1883)	New York
Woman's Medical College of Pennsylvania	(1902)	Penna.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 15-16, 1913. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 31, of whom 28 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Medical School of Maine	(1912) 82; (1913) 81, 83, 84, 85, 89, 90, 92, 93.	
Maryland Medical College	(1912)	75, 80
Harvard Medical School	(1903) 84; (1910) 88; (1912) 84, 87, 87; (1913) 77, 83, 89.	
Boston University, School of Medicine	(1912)	76
Tufts College Medical School	(1913)	80, 84, 86, 90
College of P. and S., Boston	(1912) 82; (1913)	82
Columbia University Coll. of Phys. and Surg.	(1913)	82
Laval University, Quebec	(1913)	75

FAILED

Maryland Medical College	(1910)	73
College of Physicians and Surgeons, Boston	(1910)	66
Laval University, Quebec	(1903)	78*

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Georgetown University	(1906)	Utah
Johns Hopkins University	(1897)	Dist. Colum.
Harvard Medical School	(1898)	Dist. Colum.
University of Vermont	(1912)	Vermont

* Fell below 60 per cent. in physiology.

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 8-11, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 90. of whom 45 passed and 45 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Birmingham Medical College,	(1912) 75, 75, 77; (1913) 75, 76, 77, 77, 79, 80, 80, 81, 81, 82.	
University of Alabama,	(1911) 76; (1913) 75, 76, 77, 78, 78, 79, 80, 80, 80, 90.	
Howard University, Washington, D C.	(1913)	76.
Atlanta College of Physicians and Surgeons	(1913) 78,	79.
Northwestern University	(1902)	84.
Chicago College of Medicine and Surgery	(1913) 75, 78,	80.
University of Kansas	(1907)	82.
Tulane University	(1912) 89; (1913) 81, 81,	84.
University of Maryland	(1913)	83.
Baltimore Medical College	(1913)	85.
Jefferson Medical College	(1912) 75; (1913)	75.
Meharry Medical College	(1913) 76,	81.
Vanderbilt University	(1906)	89.
Memphis Hospital Medical College	(1911)	77.
University College of Medicine, Richmond	(1908)	77.

FAILED

Birmingham Medical College.	(1908) 70; (1912) 70, 73; (1913) 43, 55, 56, 64, 64, 64, 64, 67, 69, 69, 69, 73.	
University of Alabama	(1912) 67, 69; (1913)	73.
Howard University, D. C.	(1905)	72.
Georgia College of Eclectic Med. and Surg.	(1913)	32.
Atlanta College of Phys. and Surg.	(1913) 44, 66, 71, 73, 73,	73.
Southern College of Med. and Surg.	(1912) 59; (1913)	66.
Atlanta School of Medicine	(1910) 57; (1912) 53,	71.
Chicago College of Medicine and Surgery	(1913) 69,	70.
Tulane University	(1910)	73.
Leonard Medical School	(1910)	36.
Memphis Hospital Medical College,	(1912) 55, 66, 66; (1913) 45, 47, 70.	
University of Tennessee	(1912) 62, 73; (1913)	60.
University of the South	(1907)	60.

The following questions were asked:

ANATOMY

1. How are cervical, thoracic and lumbar vertebrae distinguished? Give the characteristics of the seventh cervical vertebra. 2. To what class of joints does the elbow belong? What bones enter into its formation and name three of its ligaments. 3. Name the muscles of the anterior tibial region, and describe the tibialis anticus. 4. Describe a nerve fiber. 5. Give the origin and course of the musculospiral nerve. 6. Describe briefly the structure of arteries and veins. 7. Name the branches of the external carotid artery. Give the origin, course and distribution of the lingual artery. 8. Give in a general way the flow of blood through the systemic veins. 9. Name the terminal lymphatic vessels, and locate and describe the receptaculum chyli. 10. Give the structure of the stomach.

PHYSIOLOGY

1. Discuss at length the means and methods employed by the human organism in protecting itself against infectious diseases. 2. What phenomena follow injury to and section of the pneumogastric nerve? 3. Discuss the function of the mucosa of the respiratory tract. 4. Discuss the distribution and function of the cerebrospinal fluid. 5. Discuss aphasia. 6. Discuss hunger and thirst. 7. How is the automatic action of the heart muscle supposed to be maintained. 8. Discuss the absorption of ingested fats. 9. What general conditions influence blood-pressure and blood-velocity? 10. Discuss the origin and significance of urea.

CHEMISTRY

1. Define "chemical change" and "physical change." 2. Name, describe, and give source of two elements used in their elementary forms in medicine. 3. Describe hydrogen, how does it occur and how may it be prepared? 4. Describe carbon dioxid, give formula and state what relation it bears to the respiratory changes. 5. What is phenol, give properties and source. 6. In what tissue is iron an important constituent, and how is it combined therein? 7. Define "proteid" and name three proteids found in the human body. 8. Describe the method for the quantitative determination of urea. 9. How may occult blood be detected in the feces? 10. What are ptomains and how may they be introduced into the body?

HYGIENE AND MEDICAL JURISPRUDENCE

1. Define hygiene. 2. What is immunity and how developed? What is susceptibility? 3. Give the differential diagnosis between scarlet fever and measles. 4. What effect does excessive exercise have on the heart? What effect does insufficient exercise have on the heart? 5. What is the difference between parasites and saprophytes? 6. If on examination colon bacilli are found to be present in the general water-supply of a community, what fact does it establish? What steps, if any, should be taken to protect the community? 7. Give the prophylaxis of uncinariasis. 8. What are the methods of self-purification of large bodies of water? 9. What are the symptoms of acute poisoning from bichlorid of mercury and the antidote? 10. Found, the dead body of a newborn infant. How can it be positively determined that the child was born alive?

SURGERY

1. Give the cardinal rules for treatment of wounds. 2. Give the treatment of shock and the precautions that may be taken for its prevention. 3. Name the different forms of peripheral aneurysms and give treatment for different varieties. 4. Name the varieties of fistula in ano and give treatment for same. 5. Describe the treatment of a compound fracture of the femur. 6. Give the diagnosis and tell how to reduce a backward dislocation of the head of the femur. 7. Give diagnosis and treatment of empyema, or pus in the pleural cavity. 8. Give symptoms and treatment of gall-stones. 9. Give diagnosis and treatment of perforation of the intestine in typhoid fever. 10. Give symptoms of suppurative pyelitis.

OBSTETRICS

1. What changes take place in the circulatory apparatus of the fetus after birth? 2. What conditions may be mistaken for pregnancy? 3. How would you diagnose the death of the fetus in utero? 4. What are the results of retroflexion of the gravid uterus with incarceration? 5. What are the premonitory symptoms of eclampsia? 6. What precaution should be taken in the management of face presentations? 7. What precautions should be taken against septic infection during labor and in the puerperal state? 8. Describe the internal method of performing podalic version and what are the dangers to the fetus? 9. (a) Give the diagnostic points of value in breech presentation prior to rupture of the membranes. (b) Name and describe positions of breech presentation. 10. Describe briefly the operation of cesarean section.

GYNECOLOGY

1. Give the etiology of metrorrhagia. 2. Give the effects of öophorectomy. 3. Give the names of the two most important muscles of female perineum. 4. What is meant by fibrosis of the uterus? 5. Describe the endometrium. 6. Name the conditions that cause sterility in the female. 7. What pathologic conditions are caused by posterior displacement of the uterus? 8. Classify tumors of the uterus. 9. Describe one operation for procidentia uteri. 10. Give the contra-indications for curettage.

DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. In complete ptosis how is the eye, or its appendages, affected, and why? In complete facial paralysis how is the eye, or its appendages, affected, and why? 2. Give the differential diagnosis between acute catarrhal conjunctivitis and gonorrheal ophthalmia, and the general principles of management of each. Write two prescriptions for each. 3. Explain the normal reaction of the pupil. What is the condition of the pupil in iritis, and what the remedy? What is the condition of the pupil in glaucoma, and what the remedy? 4. State some conditions that would demand enucleation of the eyeball, and describe the operation. 5. Give the symptoms of complete obstruction of the eustachian tube, of some standing, and explain briefly the measures to be employed for relief. 6. Give the symptoms, dangers and management of acute purulent otitis media. 7. How would you diagnose and manage abscess of antrum of Highmore? 8 Give the symptoms, diagnosis and management of adenoids of the pharynx. 9. A person is eating and suddenly begins to struggle for breath and turns bluish in appearance; what would you suspect, and what would you do? 10. Give some of the indications for laryngotracheotomy and describe the operation.

THE ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the etiology of mucous colitis. 2. Give the etiology of scurvy. 3. Give the pathology of endocarditis. 4. Give the pathology of abscess of liver. 5. Give the symptomatology of erysipelas. 6. Give the symptomatology of heat-stroke. 7. Give the diagnostic symptoms of pellagra. 8. Name one variety of pernicious malarial fever and give its diagnosis. 9. Give the diagnosis of diabetes mellitus. 10. Give the differential diagnosis between appendicitis and ovaritis.

PHYSICAL DIAGNOSIS

1. Name points for observation in the inspection of the thorax. 2. Name points for observation in the inspection of the abdomen. 3. Give the varieties or kinds of respiratory (breath) sounds and the explanation of each (adventitious sounds not asked for, such as râles for example). 4. Give the varieties or kinds of voice sounds and the explanation of each. 5. Give the physical signs of bronchial asthma and their explanation. 6. Give the differential physical signs between a thoroughly compensating cardiac hypertrophy caused by mitral stenosis and one caused by aortic insufficiency, and the reasons for same. 7. Give the physical signs of pericarditis with considerable effusion and their explanation. 8. Give the physical signs of arteriosclerosis. 9. Give the method for the physical examination of the spleen. 10. Give the physical signs of a bladder distended with fluid. (Optional, to be answered or not, as the applicant prefers). Make a diagnosis in the following hypothetical case: Right side: Absent movement; bulging intercostal spaces; absent fremitus lower three-fourths, increased upper fourth; flatness lower one-third; tympany middle and part of upper third, dulness remaining upper third; absent respiratory and vocal sound lower third; amphoric breathing and egophony middle and part of upper third; bronchial breathing and bronchophony remaining upper third; succussion positive. Left side: Exaggerated movement and respiratory sound and apex of heart to left of mammary line.

Book Notices

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. Cloth. Price, $6. Pp. 1074, with 157 illustrations. New York: D. Appleton & Co., 1913.

This excellent book is a distinct addition to the lengthening list of books of the first rank by American authors. Professor Rosenau's wide and varied experience and his intimate practical acquaintance with many details of public health work qualify him in a high degree for preparing a treatise on preventive medicine. The scope of the work as he has conceived it is a broad one. The book includes sections on the prevention of the communicable diseases, on immunity, heredity and eugenics, on foods, air, soil, water, sewage disposal, refuse disposal, vital statistics and industrial hygiene. Reference is made throughout to American experiences and conditions, often to the personal observations of the author, and this adapts it particularly to practical use in this country. The field covered is so extensive that the author declares "the question . . . has been rather what to leave out than what to include." Here and there irrelevant matter is allowed to usurp space needed for more vital subjects, a curious instance being the elementary physics in the paragraph on the properties of ice (page 840). The section on disinfection is especially full and authoritative, as was to be expected from the author's previous work on this subject. The section on insect-borne disease is also admirable. Very full and clear is the section on occupational disease. We do not, however, notice any reference to the recent work on the probable influence of certain occupations in causing or predisposing to cancer, as observed in the anilin workers of Basel. In the chapter on typhoid fever (page 77) the somewhat unguarded statement is made that a group of European cities with typhoid death-rates averaging 13.9 (1909) and 15.6 (1910) "would be considered low in America." As a matter of fact more than half the cities in this country with over one hundred thousand population had a typhoid rate under 13.9 in 1912. Pellagra is discussed under the head "Poisoning from Plant Foods" and, if we understand him, Professor Rosenau seems to regard the disease as undoubtedly due to the use of spoiled corn. On page 235, however, the gnat *Simulium* is pictured and is said to be "implicated in pellagra." At times the author fails to explain his meaning clearly, as when he makes the remarkable statement that "the medical sciences lost sight of heredity, owing to the ultramaterialistic view of disease which became the vogue as a result of the germ theory" (page 424). The book is marred by the frequent misspelling of proper names. A number of the illustrations are crude and some, as the picture of a laboratory hot-air sterilizer on page 981, quite unnecessary. These are obviously minor points. Taken as it stands Professor Rosenau's book becomes at once a standard authority on the subject of preventive medicine. It should find a place in the library of every worker in this field.

THE BACTERIAL DISEASES OF RESPIRATION, AND VACCINES IN THEIR TREATMENT. By R. W. Allen, M. D., B. S. Cloth. Price, $3 net. Pp. 236, with illustrations. Philadelphia: P. Blakiston's Son and Company, 1913.

The author after more than eight years of study of the bacteriology of the respiratory tract, presents in this book some interesting conclusions as the result of his experience. The findings, if correct, would establish the etiology of all common colds on a bacterial basis. He even goes so far as to attempt to differentiate from the clinical symptoms the probable class or variety chiefly responsible for bacterial affections originating in or attacking the different regions of the respiratory tract, as the nasal, nasopharyngeal or the laryngeal portions. The author is a thorough bacteriologist and seems to be conservative in his conclusions.

Interesting features of his findings are that the predominating organism in the various respiratory affections changes with time, and more recent study of the bacteriology of the upper respiratory tract reveals great differences in the findings from those of five years previous. Vaccine therapy is advocated in the treatment of all of these affections and Allen reports good results in their cure and in the matter of immunization, but the fact is emphasized that all work must be controlled by the most careful bacteriologic determinations. Immunity, he says, probably depends more on the chemical composition of the tissues, as determined by metabolic processes, than is at present realized. In the discussion of vaccine and tuberculin therapy in tuberculosis, and the findings and the effect of mixed infections, the point is made that some varieties of germs complicating the tuberculous infection have an accelerating effect on the growth of the tubercle bacilli.

As seems to be too common with English medical writers, the author here has not hesitated to mention the employment of many proprietaries, some of which are downright nostrums of the patent medicine class.

Old Age. Its Care and Treatment in Health and Disease. By Robert Saundby, M.D., Professor of Medicine in the University of Birmingham. Cloth. Price, $2.10 net. Pp. 306. New York: Longmans, Green & Co., 1913.

Why shouldst thou die before thy time?—Eccles., viii, 17.

In this time of haste and struggle the question comes very aptly. The study of geriatrics in medicine must ultimately become a field as distinct and significant as the well-established department of pediatrics. Preventive medicine by its rapid wide-spreading growth is creating a condition whereby the individual, once reaching successfully the age of puberty, passes on with but few medical intermissions to beginning old age. The steps from adult life to normal old age are inclined to come insidiously. As the breaking up of the individual begins the physician should be able to recognize the advances distinctly normal from those characterized by symptoms of disease. In this book the author points out what may be considered as normal old age. He describes the diseases to which the aged are especially liable, considering especially etiology and prophylaxis. The contributions made recently to this growing subject are included. A special chapter is devoted to dietary and general treatment, and in six appendices are given formulas, dietaries, food analyses and a table of exercises for elderly people. The author writes in a genial, retrospective manner after an experience of forty years, and the book should make very pleasant instructive reading for the physicians' leisure hours.

Disease in Milk. The Remedy Pasteurization. By Lina Gutherz Straus. Paper. Pp. 221. New York: Mrs. Nathan Straus, 27 West Seventy-Second Street, 1913.

This pamphlet constitutes a record of the philanthropic work of the late Nathan Straus in child saving, a strong argument, backed up by the record of his own work and the results of the investigations of government and other authorities, for the pasteurization of all milk used for human food, a practical guide for the establishment and conduct of sterilized milk stations, and a memorial by his widow in commemoration of his beneficences. It is intended to continue and create general interest in the work to which Mr. Straus devoted over thirty years of his life.

Minor Maladies and Their Treatment. By Leonard Williams, M. D., M.R.C.P., physician to the French Hospital. Third Edition. Cloth. Price, $2.50 net. Pp. 396. New York: William Wood & Co., 1913.

This book, published first in 1906, has undergone little change except revision since that time. The indiscriminate mention of proprietaries noted at the first review is not so striking. The general arrangement of the book remains the same and the author's revisions have in general brought the subject matter well up-to-date. It is a question whether or not all the conditions treated are in reality minor maladies. The author introduces under goutiness a discussion of high blood-pressure, and includes other important subjects under some of his titles, so that the book covers a large part of internal medicine. In the study of indigestion the author confines himself to the sphere of functional diseases. Dyspepsia is divided into two forms dependent on symptoms, but both are referred to the same cause, irritation. The stomach tube does not seem to enter into his diagnostic scheme, so that his views are largely based on purely clinical data. While such a method does not indicate strictly modern ideas, it must be admitted that the study of symptoms, while very misleading at times, has much to commend it. The reader who makes due allowance for the empirical character of the work will find much profit in its perusal.

Text-Book of Diseases of the Nose, Throat and Ear. For the Use of Students and General Practitioners. By Francis R. Packard, M.D., Professor of Diseases of the Nose and Throat in the Philadelphia Polyclinic Hospital and College for Graduates in Medicine. Second Edition. Cloth. Price, $3.50. Pp. 377, with 145 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This is a practical book for the general practitioner, the student or the physician seeking postgraduate instruction. The author goes to the heart of every subject, giving concise descriptions without the introduction of theoretical matters. The anatomic descriptions and those of surgical procedures are good, but the directions for medical treatment are not so happy. It would seem that much of the treatment of this sort is too stereotyped or is even archaic. Many proprietary drugs are mentioned unnecessarily and advised. It is believed that this feature of the book should be given a more modern, scientific tone. The book is well made and well illustrated. A few typographical errors are noted, and in the illustration on page 40 the inferior turbinate is labeled "superior turbinate." The section on tonsils and adenoids has been rewritten and a section on bronchoscopy and esophagoscopy has been added to this edition.

Nervous Breakdowns and How to Avoid Them. By Charles D. Musgrove, M.D. Cloth. Price, $1 net. Pp. 188. New York: Funk & Wagnalls Company, 1913.

On the cover of Musgrove's book some one has written, "A book of great interest and still greater importance to the general public." It is generally known that the neurasthenic delights to search through medical works for opinions as to his condition. It was to such a one that a physician once said, "Be careful, or you will die of a misprint." A considerable literature of perhaps a hundred volumes, adapted supposedly for neurasthenics, has been issued recently by various publishers. Of this type is the book by Musgrove. It is written in primer style, adapting a somewhat didactic tone, the aim being apparently to aid the man on the brink to keep from falling over. Opinions differ as to whether or not the man confronted by nervous breakdown is really helped by such literature. Of its type the book is probably better than most.

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College. Fourth Edition. Cloth. Price, $6 net. Pp. 1062, with 1316 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The author endeavored in this edition to revise and rewrite the pathology and to add new material required to bring the work up to date. For the latter purpose such subjects have been added as blood-pressure, new ideas on anesthesia, vaccine and serum treatment of sepsis, hemorrhage of the newborn, later developments in pelvimetry, extra-peritoneal cesarean section, pubiotomy and Momburg belt constriction for hemorrhage. Many new illustrations have been inserted in this already abundantly illustrated book.

Wayside Experiences. A Collection of Plain Tales as Heard Along the Road. By C. Elton Blanchard, M.D. Cloth. Price, $1.25 net. Pp. 246. Newark, N. J.: Physicians Drug News Company. 1913.

The author has endeavored to present the experiences and observations of his professional life in a series of sketches and stories. How successful he has been, or to what extent his conclusions are sound, will depend on the point of view of the reader.

Medicolegal

Wrongly Diagnosing Case as One of Pregnancy—Insufficient Allegations to Show Malpractice—What Not Disease

(Merriam vs. Hamilton (Ore.), 130 Pac. R. 406)

The Supreme Court of Oregon reverses a judgment for malpractice rendered in favor of the plaintiff and remands the cause with directions to allow a nonsuit. The court says that the plaintiff, a married woman, averred in substance that about February 6 she employed the defendant as her physician to treat her for backache, and that he entered on such service, but did not use due care in treating her for that malady, in that he diagnosed her case as one of pregnancy, and that he contended for his diagnosis until November 8, while she was not pregnant, etc. In the consideration of the plaintiff's allegations it was of no importance whether the plaintiff was pregnant or not, for either condition is normal for a married woman who has not passed her sexual climacteric, and neither one of them is a disease or a malady. Although the complaint said that the defendant failed to ascertain the plaintiff's true condition, yet no intimation was given about what that true condition was. To charge a defendant with a tort in a case of this kind, it should appear for one thing that the plaintiff's real condition was one of disease which by the exercise of the ordinary skill of his profession the defendant should have discovered, for "they that are well have no need of a physician." In other words, if the plaintiff was in a condition of health, no cause of action would arise on the mere expression of opinion or diagnosis that she was in one or the other condition of pregnancy or nonpregnancy. In this the complaint was amenable to the objection that it failed to state a cause of action. True enough, the plaintiff said that she had a backache, but pain is not a disease; it is only the symptom of some disorder of the body which in turn may not amount to disease or trauma.

The plaintiff, indeed, said that she had been rendered weak and nervous and injured in her health and constitution by reason of the alleged careless, negligent and unskilful treatment of her by the defendant. If sound health and steady nerves were absolute conditions of every human being, it would be sufficient in so many words to charge that a departure from these conditions was due to the negligence of the attending physician, within the doctrine that it is sufficient to charge in general terms that an injury was inflicted negligently. But a continuous condition of perfect health in every or any individual does not accord with human experience, and it does not necessarily follow that the ills of which the plaintiff complained were attributable to the treatment given her by the defendant merely because they occurred during his attendance. In other words, the disorders mentioned in the complaint were such as might and often do happen to any person in the absence of medical treatment, and if the plaintiff would charge these to the defendant she must show by an appropriate averment of facts, not conclusions, that those ills were really attributable to him and would not have happened but for his lack of skill.

If we turn to an analysis of the testimony, the situation was not made better for the plaintiff. It did not establish any causal connection between the defendant's treatment of her and her alleged state of health. Out of her own mouth came statements of symptoms which all the witnesses agreed were common signs of pregnancy. She avowed that she desired to give birth to a child, and that the defendant advised her to remain quiet and take no risk of bringing on a miscarriage. She menstruated at intervals during the time she was under the defendant's care. He gave her some remedies to regulate her stomach and bowels, but the principal treatment was to advise quiet and freedom from excitement. In effect they were precautionary measures designed to prevent premature parturition.

When by lapse of time it was established that pregnancy did not exist, she consulted another physician, who diagnosed her case as one of tumor and advised an immediate abdominal operation. Not satisfied with this, she consulted still another physician, who told her there was no tumor or pregnancy and advised her to eat coarse food, put on a straight-front corset, and get rid of some of the fat on her abdomen, and the ultimate event proved the accuracy of this last diagnosis. The evidence thus disclosed that her true condition was one of health and that no injury could have resulted because of the diagnosis of her case as one of pregnancy, as that is a normal condition and not one of disease. So far as the diagnosis was concerned, no injury could be attributable to it. The bodily states of which she complained could as well be attributed to the tumor diagnosis as that of pregnancy. In this connection the trial court erred in denying the defendant's request to instruct the jury that: "Where there are two or more possible causes of an injury, for one or more of which the defendant is responsible, the plaintiff, in order to recover, must show by evidence that the injury was wholly or partly the result of that cause which would render the defendant liable. If the evidence in the case leaves it just as probable that the injury was the result of one cause as much as the other, the plaintiff cannot recover."

Treating Alleged Colles' Fracture as Sprain—Relation of Diagnosis and Treatment—Consideration of Results

(Willard vs Norcross (Vt.), 85 Atl. R. 904)

The Supreme Court of Vermont reverses a judgment for malpractice obtained by the plaintiff; dismissing the plaintiff's petition with costs. The court says that this was the third time this case had come to it from a jury trial. The plaintiff had a verdict and a judgment each time. But it was fair to presume that she had now made as good a showing on it as she ever could, and, in view of this and of the history of the case, the court thinks it ought to be ended here. The plaintiff had slipped and fallen forward onto her outstretched hands and hurt her wrists. She called the defendant in the opening of her case, and he testified that he had practiced his profession for more than twenty-five years; that he undertook the professional care of the plaintiff, and, after a careful and satisfactory examination, diagnosed a sprain of both wrists, but found no fracture; that in his treatment of her he used only one form of splint, namely, a pillow to support her hands and wrists, which were in no way bound to the pillow, but only rested on it. Other testimony on her part, given by two physicians, tended to show that she had at some time suffered an impacted Colles' fracture of both wrists.

On overruling a motion to remand the case, and dismissing a petition for a new trial, the court says that it must be admitted that there was evidence tending to show that the plaintiff's injuries were, in fact, fractures. The defendant treated them as sprains. Was he negligent in making his diagnosis? This was no more than asking if, in his effort to ascertain the character and extent of the injuries, he had and exercised the care and skill then had and exercised by physicians and surgeons in the examination of like cases in that locality. If this question was answered in the defendant's favor, liability could be established only by proof of negligent treatment; and, in proving this, it must be remembered that his mistake in the diagnosis was free from legal fault. In other words, treatment was to accord with the diagnosis; and, in judging it, it must be referred to the diagnosis, assuming, of course, that there was no negligence during the treatment in not discovering the true nature of the injury.

A physician is bound to give his patient a careful and thorough examination, so far as the circumstances will admit, using such care and skill and such methods of diagnosis for discovering the nature of the ailment or injury as are required by the rules of good local practice. If, in the exercise of such care and skill, either at the first examination or during the subsequent treatment, the plaintiff's fractures would have been discovered, the defendant's failure to discover them would amount to actionable negligence. The defendant's conduct in this behalf must be judged by what he saw and knew, or ought to have seen and known, at that time, not by what may have developed or come to light since; and, if conditions were such that the nature of the injuries became a matter of judgment merely, the defendant could not be held liable, though he erred. The conduct of a physician is to be judged, not by what usually appears and can be discovered in such cases, but by what appears or can be discovered in the instant case.

Everything went to show that this was not a usual case, but an unusual one, with conditions so obscure that the defendant's failure to discover the fractures, if, indeed, any existed, was not due to professional negligence. The court does not say that such negligence could not be established by circumstantial evidence, nor that cases might not come up in which the result itself might not afford some evidence thereof; but here the result strongly made in the defendant's favor. The plaintiff's recovery was so complete, both as regards function and deformity, as to indicate very strongly that the defendant's mistaken diagnosis, if it was such, was not due to negligence. The evidence was overwhelmingly to the effect that the result was as good as could be expected by the most skilful treatment. And the radiographs before the court showed such a complete and perfect restoration of the injured wrists that any abnormal conditions still existing were so slight as to escape the untrained eye. This result, however, was not to be taken as conclusive on the question of the defendant's liability for negligent treatment. For, though the ultimate result was all that could be expected, if the defendant negligently adopted a course of treatment which resulted in greater suffering or longer disability than would otherwise have followed the injuries, he would be liable to that extent. The question of negligent treatment, as has been seen, was to be referred to the diagnosis. If this was free from negligence, and the treatment was in accord therewith, no cause of action for malpractice existed.

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
American Association of Railway Surgeons, Chicago, Oct. 15-17.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Colorado State Medical Society, Glenwood Springs, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Idaho State Medical Association, Pocatello, Oct. 9-10.
Medical Association of the Southwest, Kansas City, Mo., Oct. 7-8.
Mississippi Valley Medical Association, New Orleans, Oct. 23-25.
Nevada State Medical Association, Reno, Oct. 14-16.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Vermont State Medical Society, Burlington, Oct. 8-10.
Virginia Medical Society, Lynchburg, Oct. 21-24.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Sixth Annual Meeting, Held at Providence, R. I., Sept. 16-18, 1913

The President, Dr. **Miles F. Porter**, Fort Wayne, Ind., in the chair.

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Charles N. Smith, Toledo, Ohio; vice-presidents, Dr. Hugo O. Pantzer, Indianapolis; Dr. J. H. Branham, Baltimore; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected); treasurer, Dr. Herman E. Hayd, Buffalo (reelected).

Buffalo, N. Y., was selected as the place for holding the next annual meeting.

Treatment of Puerperal Streptococcemia with Intravenous Injections of Magnesium Sulphate

Dr. **James A. Harrar**, New York: The use of magnesium sulphate intravenously for the treatment of puerperal infection was first proposed by R. R. Huggins in 1910. Later, Dr. R. W. Lobenstine tested the method at the New York Lying-In Hospital with more or less success. He effected a cure in three cases of streptococcic toxemia of the fulminating type, that is so frequently fatal, and in one case of streptococcic bacteriemia. His fifth and last case, one of streptococcic toxemia, but with negative blood cultures, resulted fatally, and rather discouraged him in the efficacy of the treatment. In continuation of this work, I have employed the salt intravenously in nine additional cases of the severer type of puerperal infection, the bacteria having been demonstrated in the blood of five.

A 2 per cent. solution of chemically pure magnesium sulphate is prepared with freshly distilled water. This is filtered and sterilized in half liter flasks in an autoclave. This solution will not hemolyze human red blood-cells, and I have found by experience that prepared in this way it will not cause any temperature reaction in the patient. Magnesium sulphate is of more value early in the course of the infection than after secondary localization has occurred. In the chronic cases of secondary thrombophlebitis or pyemia it does not appear to be of benefit. Its action seems to be chiefly on the organisms circulating in the blood. It shortens the course of the bacterial toxemias in which the bacteria cannot be demonstrated in the blood by culture, and anticipates the establishment of a bacteriemia, and finally it has reduced the mortality in puerperal bacteriemia, especially in streptococcemia, the most fatal form of puerperal infection, from 93 per cent. to 20 per cent.

DISCUSSION

Dr. **Ross McPherson**, New York City: Only one case has come under my observation, which was not a true bacteriemia, and that case did very well.

Dr. **Budd Van Sweringen**, Fort Wayne, Ind.: If it be true that the establishment of an abscess in the lung, as in this case the doctor recites, was responsible for the cure brought about, it bears out the contention of a man by the name of Fouchard, who wrote on the establishment of abscess in these conditions by the injection of turpentine into the tissues of the thigh or back or any available place. I imagine the good results reported by him at that time were due to a biologic process, perhaps the establishment of antibodies in this "fixation abscess" as he called it, and whatever the theory may be a number of cases of my own were treated in that way, as well as others I have knowledge of and were followed by improvement.

Dr. **H. Wellington Yates**, Detroit: The essayist attaches very little importance to the toxicity of magnesium sulphate. In the report of his cases I find that in each instance in which the magnesium sulphate is injected there followed a distinct chill with rise in temperature. Therefore, magnesium sulphate should be used with care.

Lactation Atrophy of the Uterus

Dr. **Douglas H. Stewart**, New York City: With lactation atrophy the breasts either produce too much mammary extract, and the uterus wastes away, as a fibroid sometimes will when powdered cow's udder is administered, or the secretion drains off, in the milk, some hormone which should stimulate the circulation, nutrition and growth of the uterus after the normal or physiologic atrophy of the fifth month of lactation, and the physiologic process becomes pathologic in time. In one case in my series I made the circulation right. After that lactation ceased, and growth and menstruation started at once.

DISCUSSION

Dr. **Ross McPherson**, New York City: I have wondered whether this secretion present in the breast was not the secretion that we find in many cases of pelvic disturbance. As soon as the disturbance in the pelvis is relieved, the secretion disappears. The condition is interesting and rather unusual. I had not before seen a case of lactation atrophy that presented such symptoms.

Dr. David Hadden, Oakland: In a case in which I operated two years ago there was no lactation connected with the menstruation. The woman had a baby four years before the time I saw her and had not menstruated. The uterus was retroverted, and both ovaries were prolapsed. There was a deep laceration of the cervix and an ulcer. We corrected these conditions, and two months after operation she began to menstruate and has since menstruated every month, the flow being practically normal.

Dr. Hugo O. Pantzer, Indianapolis: The paper calls attention to a class of cases touched on too little in medical literature. About twenty-five years ago I confined a blonde who had all her previous life been in frail health. After being married for one year she conceived and had a child at full term. It was a forceps delivery. There were no complications incident to child-bed. The child, in contrast with the mother, thrived wonderfully and was nursed for two years. The family was very anxious to have offspring, and the woman came to me at about the third year. I found a small atrophic uterus and complete amenorrhea of some year's standing. It is fair to associate amenorrhea and atrophy of the uterus with excessive lactation. General remedies and the use of an intrauterine stem for a period of three or four months brought back menstruation, and the patient conceived again.

Treatment of Placenta Praevia by Cesarean Section

Dr. Ross McPherson, New York City: Since 1891, in the service of the New York Lying-In Hospital, there have occurred 470 cases of placenta praevia, and the operation of cesarean section has been performed for this condition nineteen times by six different operators, all since 1905. The situation of the praevia was central in nine cases, marginal in five cases, and no statement as to situation was made in the history in five cases; no case with more than two fingers dilated; all had had severe hemorrhages before entrance into the hospital, and in all it was a matter of rapid delivery being considered advisable. The patients varied from para 1 to para 14; the youngest was 18 and the oldest 38. As to results, of the nineteen cases operated, one mother died, a maternal mortality of 5.3 per cent., two children were stillborn, and three died before leaving the hospital, two on the first day, and one on the ninth, a fetal mortality of five, or 26 per cent.

I believe that the indication is clear, that when we encounter a primipara with a placenta praevia either marginal or central, or a multipara, with a central placenta praevia, in either case where the cervix is rigid or undilated, whether or not there is pelvic disproportion, provided the child is viable and the mother offers the ordinary safe operative risk, cesarean section holds out a better chance of saving the lives of both mother and child with fewer complications than any other method of delivery, always provided that the operation is performed by a competent and experienced operator and amid suitable surroundings.

The Advantages of Cesarean Section Over Other Procedures in Border-Line Cases

Dr. John Wilson Poucher, Poughkeepsie: In five cases of cesarean section I used the high abdominal incision, opening the uterus *in situ* as soon as it is exposed, carrying the uterine incision well over the fundus. With this incision the operation can be done through an abdominal opening about one-half the size of the lower incision, and the abdominal and uterine wounds are separated by the contraction and involution of the uterus. Another advantage is that the uterine incision is made through a part of the organ away from the larger blood-vessels, and hence there is less danger of hemorrhage, and I believe also a portion of the uterus less likely to rupture in subsequent labors. For protecting the intestines and to absorb any fluids which are likely to overflow, one or two gauze pads, six inches wide, six or eight feet long, are useful. It has been said that cesarean section has caused a considerable number of ruptured uteri. We can safely say that timely cesarean section will prevent most, if not all, ruptures.

DISCUSSION

Dr. Charles N. Smith, Toledo: I have done twenty-three abdominal cesarean sections. Two of these were done in the presence of placenta praevia centralis, one of them particularly for that sole indication, and the other in the presence of transverse presentation in a woman who had lost three children previously in labor and who solicited this cesarean section. The first case was a woman, 20 years of age, who was seen at St. Vincent's hospital, having had a profuse hemorrhage. She was a primipara, with a very small vagina, long, conical, rather firm cervix, with not much dilatation, and placenta praevia centralis. We did an abdominal cesarean section immediately and saved the mother and child.

The second case was a woman, 32 years of age, on whom I did a cesarean section last May. She had been confined previously at three different times, once with a transverse presentation, the others with breech presentation. In the transverse and one breech presentations the child was delivered dead. In a third breech presentation, the child lived for some few moments only. If she had a head presentation, it was thought best to deliver by forceps. If she had an irregular presentation, or if there were any complications which led us to believe she could not be safely delivered of a living child, cesarean section must be done. Arrangements were made to take her to the hospital to have this operation done. She was taken with slight pain and profuse hemorrhage in the night, and I was quickly notified and called to see her. I found her with very little pain, with dilatation of about an inch, the head in the left iliac fossa, the back and occiput anterior, and the placenta seemingly occupying the entire lower segment of the uterus. She was bleeding rather profusely, although the pains were not hard. She was taken at once to the hospital; we did a cesarean section, delivered her of a living child, and saved her life. We had in that particular case what I hold to be the proper indications for cesarean section for placenta praevia and some other indications.

Dr. James A. Harrar, New York City: I have done cesarean section with perfect satisfaction in twenty-three cases, following Dr. Davis' incision

Dr. H. G. Partridge, Providence: I have never seen a cesarean section done for placenta praevia. I have seen cases of placenta praevia that showed a long, rigid cervix, but these have been very few. Practically all the cases I have seen have had a soft, boggy, easily dilatable cervix, and within my own personal experience there has been no case which would have been suitable for cesarean section. Within a week we had a case in the Lying-In Hospital in Providence which would have been ideal for vaginal cesarean section. This operation was eventually done, the mother being in good condition afterward, but the baby was born dead.

Dr. E. Gustav Zinke, Cincinnati: There is no doubt that the majority of cases of placenta praevia can be relieved successfully, both mother and child, by the Fry method or the De Lee method, by balloon dilatation or even by metal dilatation, although I have very little use for the latter. When we are able to watch these cases and have them in surroundings that are aseptic in character, we can see what we can accomplish by way of artificial dilatation and deliver *per vias naturales*, but when we have a case of placenta praevia centralis, for instance, which is usually complicated by an oblique or transverse presentation, the tampon will do no good, and before you succeed in dilating the uterus successfully, either by the tampon, balloon, by manual or metal dilatation, the woman is usually so exsanguinated that if she does not die during the process of delivery, she will die soon after delivery, and the child, as a rule, is lost under these circumstances because it means version of the after-coming head. Besides, in primiparous women with these oblique presentations, I would not attempt anything except a cesarean section. There are cases of marginal and lateral placenta praevia in which the hemorrhage is sometimes exceedingly difficult to control, and these are the cases in which a pathological condition pertains, in which the placenta is so implanted within the uterine wall that it has taken up much of the uterine musculature. Under normal circumstances the uterine wall is the same in every part, even under the placenta site. Ordinarily the placenta does not occupy the muscularis at all, but only the serotina. In those cases the hemorrhage is not very excessive and it can usually be controlled; but when the placental tissue and villi have buried themselves into the musculature, then we have trouble in controlling the hemorrhage, and a timely cesarean section will save both mother and child, while with the other manipulations you will probably have a fatal result so far as the child is concerned, and in many instances the mother is not saved.

No man has a right to make a cesarean section who is not thoroughly familiar with the technic of the operation. Every case of placenta praevia is a surgical one from the start and belongs to the hospital as truly as a case of appendicitis or any other surgical case, and there is no reason why these patients should not be sent to the hospital, even though the hospital may be 10, 20 or 50 miles away.

Rupture of the Symphysis Pubis in Labor

Dr. Henry Enos Tuley, Louisville: Careful research shows that there is but one case in from 30,000 to 60,000 births, including spontaneous and traumatic varieties. While recent writers state that there are about 150 recorded cases in literature, these figures cannot be verified, and Kayser's estimate of about 130 cases, plus those since recorded, would indicate that the more correct estimate is about 140. It may be safer to state that the estimate varies from 140 to 150. It has long been the teaching that the articulations of the pelvis become softened and relaxed during gestation on account of the secretion from the synovial membrane lining their surfaces. The extent to which this softening occurs is not stated by the authors who refer to this phenomenon. I do not think it is so great as to cause difficulty in standing or walking in very many cases, at least such a condition has never been brought to my attention. The percentage of cases of rupture which are caused spontaneously varies much according to different authors.

Complications may occur in the form of rupture of the anterior vaginal wall, rupture of the bladder, severe hemorrhage from rupture of the veins about the vestibule, or suppuration of the joint or soft parts. I had one case of rupture of the symphysis pubis in labor.

Conservatism in Operations for Acute Inflammatory Pelvic Disease

Dr. Budd Van Sweringen, Fort Wayne, Ind.: One should not allow a large pelvic exudate or a tubo-ovarian abscess to remain until absorbed, as it means chronic invalidism. Pus should be evacuated as soon as it is safe to do so. But when once inside the abdomen for this purpose, it is wrong to think that all pathology present must be removed with the knife. Ample provision for drainage and the ablation of the original focus will be sufficient and save many a tube and ovary, which will result in much greater peace and happiness to the patient.

Significance of Hematuria and Its Management

Dr. J. Garland Sherrill, Louisville: According to its causation, hematuria is classified as (1) traumatic, including accidental injury and also the minor traumatism resulting from stones. (2) Inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also of the urethra. (3) Vascular, blood dyscrasia, such as hemophilia, etc.; nevi, venous obstruction of the kidney; varicosity of the vesical veins, especially that due to prostatic engorgement. (4) Chemical, in which class should be placed hemorrhages from irritating drugs, as turpentine, cantharides, etc. (5) Toxic, in which the hemorrhage is the result of vascular changes occurring in severe toxemias, such as those resulting from malaria, acute yellow atrophy of the liver, yellow fever, scurvy, etc. (6) Neoplastic. (7) Parasitic. Renal hematuria is probably the form most interesting to the surgeon. Laceration of the kidney, gunshot and stab wounds, frequently cause hemorrhage which appears in the urine. Tuberculosis of the kidney presents hematuria as an early symptom, the amount of blood varying very greatly in different cases. In the treatment of hematuria, rest is of the greatest importance, and I advise the use of turpentine in small doses. Calculus, tumors, major traumatism and unilateral tuberculosis will demand operative intervention.

Acute Unilateral Hematogenous Nephritis

Dr. Curtis S. Foster, Pittsburgh: In the acute cases, with multiple miliary abscesses, and from which an overwhelming toxemia results, nephrectomy must be the operation of choice, if we would save the patient's life. Of the fourteen cases of this type encountered by Brewer, two were untreated, and in four nephrotomy with drainage was done. They all died. The remaining eight were treated by nephrectomy with recovery in each case. In the acute diffuse inflammation of the kidney, the treatment is not so well defined and must depend more on the course of the disease in the individual case. In those cases where the areas of infarction are very numerous, to such an extent that the function of the kidney is seriously impaired, and when the toxic symptoms are very pronounced, nephrectomy should be the operation of choice. In cases where the infarcts are few in number, the toxemia is mild, and the general condition of the patient good, splitting of the capsule with drainage of the diseased areas should be considered. Cases are on record, however, in which the symptoms have recurred after this operation and in which a subsequent nephrectomy was necessary.

The Diagnostic and Therapeutic Value of the Renal Catheter

Dr. K. I. Sanes, Pittsburgh: The value of the ureteral catheter in the diagnosis and treatment of urological disease is well established. It behooves us all to make use of it more frequently than it has been our custom in the past. To some of us ureteral catheterization seems a difficult procedure; to others a dangerous one. It should be neither dangerous nor difficult in the hands of men practicing the surgery that we do. Those who have catheterized many hundreds of ureters have learned not to fear infection from its use, and have gradually extended the field of its application with great satisfaction to themselves and great benefit to their patients.

Renal and Ureteral Calculi

Dr. Henry Dawson Furniss, New York City: Renal and ureteral calculi are more frequent than is generally supposed, and often exist, especially calculi, in the renal cortex for a long time without symptoms. The classical text-book symptomatology of calculi is oftentimes associated with other conditions of the urinary organs. The effect on the kidney of calculi is dependent on the size, shape, character, and most of all the location of the stones, those in the pelvis of the kidney and the ureter causing most damage. For those calculi that cannot be attacked from the vagina or bladder, the best procedure in stones that will be difficult to locate is the combined intra- and extra-peritoneal operation. If they can be easily found on account of their size, I would prefer the extraperitoneal route. It is not necessary to close the ureter, as it heals rapidly. A cigarette drain near the ureter had best be used for seventy-two hours, or while there is still drainage. If the stones are to be felt through the vagina, they can be removed through it; if impacted in the vesical orifice, by slitting the ureter through an operating cystoscope, or after suprapubic cystotomy, or by cautery fulguration.

Local Anesthesia in Abdominal Surgery

Dr. Julius H. Jacobson, Toledo: With this method of local anesthesia I have performed thirty-six operations on twenty-eight patients, eight of these being operated for double hernia. The operations were as follows: twenty-eight operations for radical cure of inguinal hernia; three operations for strangulated inguinal hernia with radical cure; one operation for radical cure of femoral hernia; two operations for strangulated femoral hernia; one operation for incarcerated umbilical hernia; one operation for incisional hernia; total number of operations on twenty-eight patients, thirty-six. Mortality, 0 per cent.

In only two of the earlier operations was it necessary to finish the operation under a general anesthetic. This was due to inexperience with the method. The operations were uniformly painless, without nausea or vomiting, and without the slightest toxic effect from the anesthetic solution. The sensation of the operation is described by the patients as that of a pulling or tugging on the parts. In a few instances some pain was complained of when working about the hernial sac or peritoneum. This can be overcome by a separate injection of the neck of the sac early in the operation. As the adrenalin acts as a hemostatic, there is some danger of a postoperative hematoma. It is therefore, necessary to ligate all blood-vessels as soon as they are divided.

Cholangitis and Pancreatic Lymphangitis

Dr. L. W. Swope, Pittsburgh: The clinical histories and physical signs in twenty-two cases out of a series of 2,000 operations on the biliary and pancreatic systems justified the diagnosis of carcinoma of the head of the pancreas. The findings were of such a nature that differentiation from cancer is almost impossible. There was recovery with relief of symptoms after temporary or permanent drainage of the bile passages which excluded the possibility of malignancy. At necropsy on the three patients that died, the postoperative and post-mortem changes were so marked, the characteristic operative findings were completely altered; consequently, post-mortem examination has added very little to our knowledge of pancreatic lymphangitis. It is probable that the infection causing the pathologic enlargement of the head of the pancreas in these cases travels through the lymphatics, causing lymphangitis in the pancreatic interstitial tissue. This supposition explains the improvement and cure with the subsidence of the inflammatory enlargement of the head of the pancreas which follow operation. The origin of infection is often obscure.

Treatment consists in drainage of the bile passages, temporary or permanent. The former is obtained by surface drainage of the gall-bladder and common duct; the latter, by anastomosing the gall-bladder to the duodenum or stomach.

Observations Based on Seventy Cases of Bowel Obstruction with Special Reference to the Unusual Cases

Dr. Walter C. G. Kirchner, St. Louis: Obstructions due to hernia were encountered in forty-seven cases, or in 10 per cent., of the hernias operated on. Most of the cases of ileus were seen in the critical stages, and the mortality rate was 52 per cent. In the seventy cases postoperative ileus due to adhesions occurred ten times, with a mortality of 50 per cent. The appendix was implicated in 8 per cent. of the cases. Resection of bowel was performed in 25.7 per cent. of the cases, with a mortality of 27 per cent. The intestinal obstructions which were encountered were those caused by adhesion, carcinoma, fibromyoma, intussusception, volvulus, interstitial hernia, excessive dilatation of colon, gall-stone, prolapse of intestines through rupture in mesentery, prolapse of intestine through rent in omentum, thrombosis of superior mesenteric artery, etc.

Obstruction of the bowel is essentially a surgical condition, and the mortality rate is in direct proportion to the duration of the obstruction. Greater stress should be laid on the necessity for early operation in bowel obstruction. In the early cases of obstruction, resection may be a safe procedure, while in the critical cases primary enterostomy and later resection of bowel or repair of fecal fistula is a better course to pursue.

Cancer of the Uterus and Fibroid Tumors from a Clinical Standpoint

Dr. Edward Joseph Ill, Newark: From personal experience, I hold that fibroid tumors are not a cause of malignant degeneration of the uterus. Among 443 operative cases in my own hands there is no record of any fibroid having undergone malignancy, nor is there any record among 2,600 cases recorded in my office case book of any having undergone malignancy, although many of these cases were seen repeatedly for years. The necropsy records of hospitals variously situated show that from 4 to 8 per cent. of all women over 30 years have fibroid tumors. During the same time that the 443 operations of fibroid tumor took place, I operated on 175 cases of cancer of the uterus. Five of these cases had fibroids in the uterus; four were cases of true carcinoma; one case, a sarcoma, had small fibroids in the posterior wall, while the sarcoma was situated in the anterior wall behind the scar of an old fixation operation. It is thus shown that all my cancer cases had but 2.8 per cent. of fibroids, which is less than the average of all women over 30 years. My deductions are that we have no right to suggest the operation for removal of fibroid tumors when possible future malignant degeneration constitutes the only indication.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

September, XV, No. 2, pp. 131-239

1 Histogenesis and Morphogenesis of Thoracic Duct in Chick; Development of Blood-Cells and Their Passage to Blood-Stream via Thoracic Duct. A. M. Miller, New York.
2 **Prenatal and Neonatal Lung.* W. H. F. Addison and H. W. How, Philadelphia.
3 Development of Cerebral Ventricles in Pig. C. H. Heuser, Boston.

2. Prenatal and Neonatal Lung.—According to Addison and How, during prenatal life the future respiratory passages are filled with a liquid. With the first inspirations of air, the thoracic cavity is enlarged by the action of the respiratory muscles, the lung is thereby enlarged, and the liquid in the trachea and bronchi is drawn down into the lung, and is distributed along the walls of the alveolar and other spaces. In microscopic sections of lung taken from fetal animals, there is seen a finely granular substance (a precipitate from the fluid present) widely scattered through the spaces; and large mononuclear cells, probably phagocytic in function, are found uniformly distributed in small numbers. In sections of lung of neonatal animals the finely granular substance is still found, usually close to the walls of the air-spaces and fewer mononuclear cells are seen. Before breathing, the lining epithelial cells of the alveoli are irregularly cuboidal with rounded nuclei; but after breathing, with the increased area of the walls of the alveoli, the nuclei are spaced farther apart, the cytoplasm is drawn out and the cells are very thin and flat. After breathing has begun, the mesenchyme appears denser, with its nuclei more compacted, and the blood-vessels are distended and more conspicuous.

Annals of Otology, Rhinology and Laryngology, St. Louis

June, XXII, No. 2, pp. 273-580

4 Removal of Adenoids by Direct Inspection. J. C. Beck, Chicago.
5 When to Operate on Labyrinth in Labyrinth Infection Secondary to Purulent Otitis Media. G. E. Shambaugh, Chicago.
6 Some Attempts at Intranasal Transplantation of Nasal Tissues. S. Iglauer, Cincinnati.
7 Case of Paracoustic Vertigo and Nystagmus Cured by Operation on Labyrinth. J. R. Page, New York.
8 Atrophic Rhinitis with Ozena—Its Etiology and Surgical Treatment. F. P. Emerson, Boston.
9 Intranasal Treatment of Meckel's Ganglion. E. M. Holmes, Boston.
10 Bronchoscopic Removal of Collar Button after Twenty-Six Years' Sojourn in Lung. C. Jackson, Pittsburg.
11 Combined Laboratory and Roentgen-Ray Indications for Mastoid Operation. G. S. Dixon, New York.
12 Ocular Manifestations in Nasal and Aural Diseases which Probably Indicate Involvement of Sympathetic Nervous System. W. H. Haskin, New York.
13 Results in Series of Cases of Tonsillectomy at Massachusetts General Hospital, Three to Four Years after Operation. J. P. Clark, Boston.
14 Removal of the Fibromyoma which Excluded Auditory Canal; Hemophilia. M. D. Ledermann, New York.
15 Abscess of Frontal Lobe of Brain, of Otitic Origin, with Exhibition of Specimens. T. P. Berens, New York.

16 Suspension Laryngoscopy with *Demonstration of Method.* W. Freudenthal, New York.
17 Training of Specialist. T. J. Harris, New York.
18 Clinical Indications for Mastoid Operation. W. S. Bryant, New York.
19 Congenital Osseous Obstruction of Postnasal Orifices. C. W. Richardson, Washington, D. C.
20 Intra-Ocular Tension in Glaucoma Lowered by Injection of Sphenopalatine Ganglion. H. E. Miller, St. Louis.
21 Peritonsillar Phlegmon—Report of Case. F. E. Hopkins, Springfield, Mass.
22 Primary Tuberculosis of Middle Ear. C. H. Long, Chicago.
23 Case of Temporosphenoidal Abscess of Otitic Origin—Operation—Recovery. J. F. McCaw, Watertown, N. Y.
24 Sinus Thrombosis following Necrosis of Periosteal Flap. O. Glogau, New York.
25 Case of Paralysis of Abducens Nerve Associated with Acute Mastoiditis. H. Hays, New York.

Boston Medical and Surgical Journal

September 18, CLXIX, No. 12, pp. 409-448

26 Workmen's Compensation Act from Legal Standpoint. J. C. Johnston, Boston.
27 Workmen's Compensation Act as Viewed by *Member of Industrial Accident Board.* D. M. Holman, Taunton, Mass.
28 Workmen's Compensation Act as it Affects Physician. R. M. Merrick, Dorchester, Mass.

Bulletin of Johns Hopkins Hospital, Baltimore

September, XXIV, No. 271, pp. 263-294

29 Osteitis *Deformans*, Paget's Disease. S. H. Hurwitz, Baltimore.
30 *Diabetes in Early Infancy. J. H. M. Knox, Baltimore.
31 Production of Passive Hypersensitiveness to Tuberculin. C. R. Austrian and H. Fried, Baltimore.
32 Striking Examples of Subnormal Accommodative Power. S. Theobald, Baltimore.
33 *Unilateral Sclerosis of* Pulmonary Artery. F. A. Evans, Pittsburgh.
34 Value of Nasopharyngeal Surgery in Treatment of Chronic Exudative Otitis Media. H. O. Reik, Baltimore.

30. **Diabetes in Early Infancy.**—In connection with the report of an instance of diabetes mellitus in early infancy, Knox presents briefly other cases of the same disease occurring during the first year of life. The urinary findings are usually incomplete, but a consideration of all the symptoms given warrants the probable diagnosis of diabetes mellitus in the cases of fifteen additional babies under one year reported from 1852 to the present. The majority of these cases were males. Knox found that heredity seems to have played but little part. Continuous over-feeding of sugar preceded the onset in three cases. Injury to or alteration of the central nervous system was often associated with the beginning of the malady. The more common symptoms were increased thirst and hunger, loss of weight, polyuria and glycosuria; acidosis and coma occasionally ended the scene. Knox regards the prognosis as grave, but not hopeless, even in infancy, except in a severe grade of the disease. He insists that treatment should be begun early, and, although more difficult in carrying out, should follow the lines found most successful in the treatment of diabetes in adults, i. e., the patient's carbohydrate tolerance should be determined and the sugar content of the diet (milk mixture) correspondingly reduced, the calorific requirements being furnished by fats and proteids. An "oatmeal day" or days should be given at frequent intervals.

California State Journal of Medicine, San Francisco

September, XI, No. 9, pp. 341-386

35 *Experience with Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. F. Fehleisen and M. Rothschild, San Francisco.
36 Primary Infection with Tubercle Bacilli, with *Special Reference* to Thoracic Lymph-Nodes. P. K. Brown, San Francisco.
37 *[illegible] of Fractured Charcot Hip-Joint. R. Brown, [illegible]
38 [illegible] Complex. H. Hastings, Los Angeles.
39 Modern Therapy of Syphilis. V. Vecki, San Francisco.
40 Luetin as Aid in Diagnosis of Syphilis. E. S. Loizeaux, Sacramento.
41 Chronic Intestinal Amebiasis, without Dysentery. R. S. Cummings, Los Angeles.
42 Cutaneous Reaction of Syphilis (*Luetin Reaction*). J. M. Wolfsohn, San Francisco.
43 Enteroclysis in Treatment of Weak Hearts. W. W. Kerr, San Francisco.
44 Orthopedic Treatment of Spinal Poliomyelitis. J. T. Watkins, San Francisco.
45 Blood Changes that May Assist in Diagnosis of Cancer. D. H. Currie, Honolulu, Hawaii.

35. **Artificial Pneumothorax in Pulmonary Tuberculosis.**—Rothschild believes *now that it is well* worth while to try an artificial pneumothorax in all one-sided cases of tuberculosis in which no improvement seems to take place under the ordinary treatment, and in which the inflation is possible, that is, where the adhesions are not so extensive that they prevent an inflation and compression. If the patient shows signs of improvement under the treatment with artificial pneumothorax, keep it up; if not, do not *reinflate.* The same principle should be followed in regard to the other side —in case this should be slightly affected. If it should improve through the increased aeration, which the compression of the *other side* necessitates, keep up the artificial pneumothorax on the bad side; if it should get worse, interrupt the treatment. Roentgen rays will not help much and are often hard to use continually. The proper physical examination in connection with careful clinical observation has been sufficient in all cases to guide Rothschild correctly.

37. **Fractured Charcot Hip-Joint.**—To cure such a fracture, Brown says, the hip-joint must be obliterated—an arthrodesis must be performed. Success is to be gained only by excision of the entire capsule and synovial membrane, complete removal of the cartilage bearing bony structure from the head of the femur and from the acetabulum and cutting away of all excess bone. To secure firm bony union the neck of the femur must be nailed to the acetabulum. The reduction of the fracture and the maintenance of the fragments in apposition is likewise attained by this last step as the nails are driven through the neck in a direct line from the base of the great trochanter. The steps in the operation are: (a) A large U-shaped incision is made over the hip with the trochanter in the center of the U. (b) With a chain-saw, the trochanter is sawed off downward and outward and then retracted with its attached muscles upward. (c) The obturators and pyriformis muscles are divided and ends transfixed for subsequent approximation. Free access is now had to the joint to permit of the removal of the capsule and cartilages.

Illinois Medical Journal, Chicago

September, XXIV, No. 3, pp. 141-200

46 Diagnosis of Feeble-Mindedness. H. H. Goddard, Vineland, N. J.
47 Some Types of Feeble-Minded. C. B. Caldwell, Lincoln.
48 Psychologic Clinic as Eugenic Agency. C. H. Town, Lincoln.
49 How *Old the* New in Medicine and Surgery. J. J. Walsh, New York.
50 Illinois County Tuberculosis Act. E. Mammen, Bloomington.
51 Fractures about Elbow-Joint. C. A. Stevens, Chicago.
52 *Experimental Study of Intestinal Sutures. G. T. Courtenay, Chicago.
53 Hemorrhage in New-Born. M. T. Goldstine, Chicago.

52. **Intestinal Sutures.**—Nine varieties of suture materials were used by Courtenay in his experiments, as follows: human hair, horse hair, linen, plain and paraffin; silk, Nos. 7 and 13; catgut, Nos. 00, 1 and 2. In ten dogs the abdomen was opened, observations made and the specimens removed at the end of twenty-four hours; in another ten at the end of forty-eight hours, and in the third ten at the end of ninety-six hours. Each dog was subjected to at least one kind of material, and in some instances two different kinds were used in the same animal. None of the animals died, and in none was there any marked degree of peritoneal infection. The ideal result, he says, is that in which there might be a perfect coaptation without reaction, and this is most nearly approached by using human hair as a suture. Since the amount of reaction is closely related to the amount of seepage and leakage, both of which are greater with the heavier sutures, Courtenay concludes that the finer the suture the better the result. Human hair withstands a tremendous pressure, whereas the heavy catgut invariably cuts through the bowel. Safety of result lies not in the inherent strength of the suture, but rather in the perfection of approximation and minimum of reaction. From a clinical standpoint the suture of choice is that which is of a fine texture, readily prepared and the finest that can be conveniently employed by an individual operator.

Iowa State Medical Society Journal, Clinton

September, III, No. 3, pp. 147-218

54 Importance of Laboratory Examinations in Early Infancy and Childhood. G. N. Ryan, Des Moines.
55 Gonorrhea. F. J. Jarvis, Oskaloosa.
56 Study of Uterine Fibroids. M. H. McLean, St. Louis.
57 Value of Roentgen Ray as Diagnostic Aid in Diseases of Accessory Nasal Cavities. R. H. Parker, Des Moines.
58 Surgical Treatment of Pyosalpinx. H. D. Gray, Des Moines.
59 Hemiplegia and Hemiplegia State. R. C. Doolittle, Des Moines.
60 Pathology of Gonorrhea. J. W. Shuman, Sioux City.
61 Pneumonia in Children. F. M. Fuller, Keokuk.
62 Treatment of Atrophic Rhinitis. F. W. Bailey, Cedar Rapids.

Journal-Lancet, Minneapolis

September 1, XXXIII, No. 17, pp. 475-499

63 Pellagra, with Report of Two Cases. C. T. Granger, Rochester, Minn.
64 Public-Health Education. G. W. Parsons, Sioux Falls, S. D.
65 Life Insurance Examinations. F. W. MacManus, Williston, N. D.

September 15, No. 18, pp. 501-532

66 Two Cases of Pons Tumors, One of Sarcoma and One of Gliosarcoma, with Hemorrhage. W. H. Bodenstab, Bismarck, N. D.
67 Private Laboratory—Does It Pay? C. U. Moore, Carthage, S. D.
68 Sex Education from Physician's Viewpoint. R. P. Frink, Wagner, S. D.
69 Some Features in Local Practice of Medicine. R. H. Ray, Garrison, N. D.
70 *Simple and Safe Method of Preparing Catgut. H. W. Barbour, Edgeley, N. D.

70. **Simple and Safe Method of Preparing Catgut.**—In Barbour's method the raw catgut is cut in 18-inch lengths. Each length is wound on a glass tube three-fourths inch in length. Get tubing that is used as water-gauges in steam boilers, and have them cut up in proper lengths. The gut is so wound on this tubing that the first turns fasten each end of the ligature to prevent unwrapping. The winding should be done smoothly, not allowing one turn to overlap the other. It is next placed in a solution composed of 1 part of tincture iodin in 15 parts of 90 per cent. alcohol, where it remains for ten days. At the end of ten days it is placed in a 2 per cent. watery solution of formaldehyd for twenty-four hours to render it somewhat harder, after which it is stored in 95 per cent. alcohol to which ½ grain of mercuric chlorid has been added for every ounce of alcohol. If desired it may be rinsed in sterile water before use. Barbour has soaked coils of catgut in a bouillon culture of anthrax, placed them in iodin solution and made cultures daily, and has found the gut sterile after the seventh day. He has not been able to detect any change in the catgut after it has been stored for six months. It has given good satisfaction in general surgical work and for skin sutures.

Journal of Biological Chemistry, Baltimore

September, XV, No. 3, pp. 385-528

71 *Protozoan Protoplasm as Indicator of Pathologic Changes: In Nephritis. L. L. Woodruff and F. P. Underhill, New Haven, Conn.
72 *Idem: In Carcinoma. F. P. Underhill and L. L. Woodruff, New Haven, Conn.
73 Formation of Hydrocyanic Acid from Proteins. H. W. Emerson, H. P. Cady and E. H. S. Bailey, Kansas City.
74 Preliminary Report on Production of Hydrocyanic Acid by Bacteria. B. J. Clawson and C. C. Young, Kansas City.
75 Chemical Differentiation of Central Nervous System: Chemical Differentiation of Brain of Albino Rat during Growth. W. Koch and M. L. Koch, Philadelphia.
76 Presence of Adenase in Human Body. E. R. Long, Chicago.
77 Glyoxalase: Distribution of Enzyme and Its Relation to Pancreas. H. D. Dakin and H. W. Dudley, New York.
78 Action of Leukocytes and Other Tissues on dl- Alanin. P. A. Levene and G. M. Meyer, New York.
79 Case of Pentosuria. P. A. Levene and F. B. LaForge, New York.
80 New Method for Determination of Urea in Blood. E. K. Marshall, Baltimore.
81 *Determination of Urea in Urine. E. K. Marshall, Baltimore.
82 Blood Glycolysis: Its Extent and Significance in Carbohydrate Metabolism: Supposed Existence of "Sucre Virtuel" in Freshly Drawn Blood. J. J. R. Macleod, Cleveland.
83 Researches on Purines. C. O. Johns and E. J. Baumann, New Haven, Conn.

71. **Protozoan Protoplasm as Indicator of Pathologic Changes.**—An attempt was made by Woodruff and Underhill to demonstrate the existence of chemical changes arising from pathologic conditions by determining the effects of normal and pathologic tissue extracts on a unicellular animal, paramecium. To initiate an experiment a single paramecium was isolated with a capillary pipet under a Zeiss binocular microscope and placed in a watch glass with a small amount of culture medium (hay infusion) similar to that employed for the main lines of the race. When, in the course of a few days, this animal by division had produced a sufficient number of cells for the experiment each of the organisms was isolated on a clean depression slide and supplied with five drops of the extract to be tested. Each extract was tested on eight lines of sister cells for five days. Every day a single animal was isolated from each of the lines, placed on a clean depression slide and supplied with five drops of the extract from the test tube containing that day's supply.

At the time of isolation a record was made of the number of divisions in each of the eight lines of cells during the previous twenty-four hours and these data are the basis of the results submitted in the present paper. These, in brief, are: Paramecium fails to indicate any essential difference in its division rate when subjected to the influence of extracts prepared from the separate kidneys of one rabbit or from kidneys of different individuals. Kidney extracts made from a starving rabbit behave in a manner identical with normal kidney extracts of well-fed animals. The division rate of paramecium is markedly depressed when placed in kidney extracts of rabbits with tartrate nephritis. It has been demonstrated that this depressant influence cannot be associated primarily with tartrate which has accumulated in the kidneys, since quantities which could be present according to chemical tests would produce the opposite effect, namely slight stimulation of the division rate. Moreover, the depressant action of kidney extracts prepared from animals receiving large doses of tartrate is no greater than with extracts of nephritic kidneys of animals that had been given small doses of tartrate. From these facts it is apparent that the pathologic change—hence, presumably chemical alteration—in the renal tissue itself is responsible for the action observed on the division rate of paramecium.

The authors conclude that paramecium, therefore, may be regarded as a biologic indicator of chemical change; and it is proposed to employ this biologic method for the detection of chemical change under a variety of normal and pathologic conditions.

72. **Idem.**—In certain concentrations extracts of carcinoma of the breast showed a very pronounced depressant influence on the division rate of paramecium when compared to that obtained with paramecium bred in normal mammary tissue extract. In some instances the depressant influence may be so profound as to lead to the death of the paramecia within two or three days. Weaker dilutions of the abnormal tissue extracts may show a stimulating action on paramecium. It has been demonstrated that the difference in concentration which may exist between the normal and abnormal breast tissue extracts cannot be held responsible for the detrimental action of the abnormal extract on paramecium, for when the concentrations of the two extracts under discussion are made as nearly equal as possible the original type of action still is observed.

81. **Determination of Urea in Blood.**—The blood is drawn in the usual manner and allowed to stand on ice until clotting is complete. As shown below the urea content of the serum does not change after standing even for three or four days; the blood can, therefore, be kept on ice over night, if desired. Two equal portions of the serum are measured into ordinary test-tubes, 1 c.c. of the soy bean extract added to one tube, and about 0.5 to 1.0 c.c. of toluene to each. If sufficient serum is available, 10 c.c. portions should be used; however, perfectly satisfactory results can be obtained by using 5 c.c. or even 3 c.c. portions of the serum. The tubes are tightly stoppered, and allowed to remain at room temperature until the conversion of the urea into ammonium carbonate is complete. Generally, they are allowed to stand over night,

although four to five hours is usually amply sufficient for the completion of the reaction. The contents of the tube containing the serum and extract are transferred to cylinder A, and washed in with a very small amount of water (not more than 5 c.c.). Two grams of sodium chlorid, an equal volume of alcohol and a layer of kerosene oil are added to the cylinder. The contents of the other tube are transferred to cylinder B and treated in exactly the same manner. Twenty-five c.c. of N/50 hydrochloric acid and about 25 c.c. of water are placed in each of the 200 c.c. Erlenmeyer flasks used for the absorption of the ammonia. The different parts of the apparatus are now connected and about 0.5 gram of sodium carbonate added to each cylinder. A rapid air current is passed through the apparatus until all the ammonia has been removed from the cylinders. With a good suction pump, one hour suffices. The excess of acid in the absorption flasks is titrated with N/50 sodium hydroxid and alizarin sodium sulphonate. The amount of acid neutralized in the flask attached to cylinder B corresponds, of course, to the ammonia present in the serum, while the amount used in the other two flasks represents the urea plus the ammonia. The difference corresponds to the urea in terms of N/50 hydrochloric acid, and multiplied by 0.0006 gives the urea in grams present in the amount of serum taken for the determination.

Journal of Cutaneous Diseases, New York

September, XXXI, No. 9, pp. 611-696

84 Intense Bronzing with Cutaneous Tumors in Case of Malignant Lymphoma (Hodgkin's Disease). J. T. Bowen, Boston.
85 Leukocytes in Syphilis. H. H. Hazen, Washington, D. C.
86 Salvarsan and Neosalvarsan in Syphilis: Comparative Study. H. H. Whitehouse and A. S. Clark, New York.
87 Experience of Medical Profession of Toronto in Treatment of Syphilis with Salvarsan. D. King-Smith, Toronto.

Kentucky Medical Journal, Bowling Green

September 1, XI, No. 17, pp 745-778

88 Prolapse of Uterus and Its Treatment. L. Bloch, Louisville.
89 Chronic Constipation. B. Asman, Louisville.
90 Some Phases of Tabes Dorsalis. B. D. Choate, Louisville.

Medical Record, New York

September 20, LXXXIV, No. 12, pp. 507-552

Some Phases of Surgery of Stomach. G. Woolsey, New York.
92 Cause and Prevention of Cardiosclerosis. L. F. Bishop, New York.
93 *Anaphylaxis and Asthma. J. Matthews, Rochester, Minn.
94 Administration of Tuberculin by General Practitioner. M. Solis-Cohen, Philadelphia
95 Vaccine Treatment of Typhoid. W. H. Watters, Boston.
96 Functions of Psychologic Clinic. J. E. W. Wallin, Pittsburgh
97 Bier's Artificial Hyperemia as Therapeutic Agent. M. Davidoff, New York.
98 Absence of "Sausage-Shaped Tumor" and "Mass Per Rectum" in Intussusception in Infants. L. M. Kahn, New York.
99 Easy Method of Administering Salvarsan and Neosalvarsan Intravenously. E. G. Ballenger and O. F. Elder, Atlanta, Ga.

93. **Anaphylaxis and Asthma.**—During the past four years there have been examined in the Mayo Clinic about 300 cases of asthma. Matthews says that *in over 90 per cent.* of the cases the principal lesions which might be considered as etiologic were in the upper respiratory tract. Chronic suppuration or the retention of mucoid secretions in the nose or accessory sinuses occurred in the majority of these cases. Treatment was directed toward the object of securing free and continuous drainage of every portion of the tract and little attention was paid to possible reflex factors of etiology. In the majority of the cases the *relief of the asthma* corresponded almost exactly with the degree of success in obtaining the result sought, that is, the prevention of the retention and reabsorption of mucous secretions. Matthews states that the relief of asthma by any known treatment does *not mean* that the patient is permanently cured, since the susceptibility remains throughout life and symptoms will recur whenever there exist conditions favorable to the production and absorption of the specific antigen to which the individual is sensitive. Various methods of desensitizing animals have been discovered but no method yet reported gives a lasting immunity and all are attended by high mortality. Until a safe and efficient method of desensitization is possible the treatment of asthma must be directed as in the past to the relief of symptoms by whatever measures are indicated in each individual case.

Missouri State Medical Association Journal, St. Louis

August, X, No. 2, pp. 43-80

100 Physiology of Defecation and Etiology of Habitual Constipation. W. H. Stauffer, St. Louis.
101 *Diet in Habitual Constipation. J. M. Bell, St. Joseph.
102 Drugs and Constipation. O. B. Hall, Warrensburg.
103 *Surgical Treatment of Chronic Constipation. A. E. Hertzler, Kansas City.
104 Roentgenoscopy in Habitual Constipation. E. H. Skinner, Kansas City.
105 Gauze or Rubber-Tube Drainage for Peritoneal Cavity. H. J. Jurgens, Edina.
106 Our State Hospitals. W. F. Kuhn, Kansas City.
107 Tubercular Laryngitis. D. A. Vanderhoof, Colorado Springs.
108 Nitrogen Poisoning. J. J. Gaines, Excelsior Springs.

101. **Diet in Habitual Constipation.**—The keynote of diet, for habitual constipation, Bell says, is the selection of foodstuffs containing a large amount of cellulose—woody fiber, which does not digest, but reaches the colon as cellulose—and those foodstuffs which leave distinct bulk of residue, so as to gently stimulate weakened muscles and blunted nerve reflexes. And they must be eaten in abundance, for constipation exists frequently as the result of a too abstemious diet, even with the colon and the rectum normal. Consequently those foods which are capable of complete digestion and leave little or no residue, such as rice, mashed potatoes, white bread and tender meats, must be used very sparingly. Some discrimination must be exercised even with coarse vegetables; and those essentially flatuous—boiled cabbage and cauliflower—must be excluded. Cabbage, raw, in the shape of cold slaw, may be used; being largely indigestible, its food value is diminished, but the cellulose content furnishes peristaltic stimulation. Bran in some form is to be used every day, either dry with cream and sugar as a breakfast food, or made into muffins, or made into bread. If it is not well tolerated, pumpernickel may be substituted, preferably a day or two old; it must be well chewed. Fletcherism is not advocated, since the degree of mental concentration involved is apt to act perniciously, especially with the neurotic. To complete the breakfast, an egg may be added, with fried potatoes and fruit, preferably fibrous—figs, dates, raisins. In regard to eggs, if there be a distinct indicanuria, animal food of all kinds, except butter and cream, is interdicted for one or two weeks.

If there be a neurosis or hyperchlorhydria, coffee is cut off indefinitely, and no fluid but cold water is permitted. The mid-day meal is made up of vegetables, nutritious, yet *containing as much cellulose as possible*—peas, beans, corn, turnips, parsnips, with whole wheat bread and fresh greens; if in season, lettuce, spinach, celery and cold slaw. Fruit is preferable for dessert to pastry or pudding. Juicy fruit, or fruit salads are allowed. The diet list must be liberal, otherwise appetite fails and the desired result is lost because of lack of bulk. For the evening meal, fruit alone is most effectual, unless the patient be a mechanical artisan or a laborer, in which case the noonday list may be repeated. An evening meal of an orange or two, with apples, figs, dates, raisins and fruit salad is satisfying to the appetite and body and aids peristalsis materially. A whole wheat or bran muffin may be added, also cold slaw or lettuce.

The general objection of insufficient caloric value is without *foundation* in Bell's experience, for this very outline is followed in his practice with excellent results. Calories may be increased by means of added butter and cream. The albuminous content may be well *maintained* by increasing the whole wheat, peas, beans and corn. The only possible objection to be made is the lack of stimulation suffered by abstinence from animal food. This is *not* complained of for a week, or two, in most cases. When it is so, animal food may be added to the mid-day meal. Such a diet as suggested will make four to five stools daily with some patients, while with others no more than one. Liberal meat eaters sometimes complain of being starved, but the impression is largely mental, for they lose *no* weight or strength. Coffee is *not* to be condemned categorically. There are cases in which coffee creates enough peristalsis for a liberal stool at once after breakfast; when this is the case, unless there be hyperchlorhydria or neurosis, it is permitted once daily. After a period of from one to two weeks, when the coated tongue and malaise have disappeared, when headache and dizziness have gone, when clear mental and physical vigor return and a habit of two or three daily stools is inaugurated, the diet list is made more liberal.

103. **Surgery and Constipation.**—The tendency at the present time, Hertzler believes, is to apply surgical procedures for the purpose of lessening the resistance to a peristaltic force which has become permanently weakened. However, before a condition becomes surgical it must have been determined that the gut force is permanently weakened, and at the present time we are not able to do this with any degree of certainty. When we come to recognize clearly, he says, that there is no anatomic basis for this class of constipation, we may be able to come to some decision as to when an alteration of anatomic conditions is indicated for the purpose of lightening the burden of a weakened gut. Obviously, such an indication cannot be formulated until the exact factors active in a given case are determined. In the presence of a cause which can be removed by medical means operation is not indicated, and unless we find a cause the case cannot be treated logically. The little tinkering operations based on hypothetic conditions are certainly not indicated. If any operation at all is necessary it is an ileosigmoid anastomosis.

New York Medical Journal

September 20. XCVIII, No. 12, pp. 549-596

109 Preoperative Caution to Avoid Postoperative Calamities. H. A. Wilson, Philadelphia.
110 *Position of Stomach in Children in Relation to Posture. J. W. Sever, Boston.
111 Climate of San Diego, California Region, with Relation to Renal Diseases. P. M. Carrington, St. Louis.
112 Differentiation between Moronism and Ignorance. H. A. Knox, Ellis Island, N. Y.
113 Uses and Limitations of Paraffin in Treatment of Ozena. J. Auerbach, New York.
114 Traumatic Periostitis of Lumbosacral Spine. C. E. Coon, Syracuse.
115 Retropharyngeal Abscess. W. C. Billings and J. G. Wilson, New York.
116 Cylinder Showers, Their Significance. B. G. R. Williams, Paris, Ill.

110. **Position of Stomach and Posture in Children.**—In eighty-three cases of general average developed children Sever found that the average position of the stomach is a much lower one than had been previously suspected, and that to find a stomach at or well below the crests of the ilium is not at all unusual. But one of these children had symptoms which were due to a dilated colon, which condition caused chronic constipation, and not to a stomach which showed a moderate ptosis. They were otherwise perfectly well as far as their digestive apparatus was concerned. The shape of the child's stomach as seen in this series was generally large and either horizontal or of the sink drain type. The ideal so-called cow-horn stomach was rare. Sever does not believe that posture in children, apart from the erect position of humans in general, has nearly as much to do with ptosis as has formerly been believed. What he believes has been shown proves that the child's stomach is lower than is generally supposed, and to find a stomach low in a child does not therefore mean that there is a pathologic ptosis. It is of course obvious that poor posture should be corrected and impaired general health built up, but he believes that neither is a cause of ptosis in children, nor that a low stomach is necessarily a weak link in the chain of a child's development.

Southern Medical Journal, Nashville

September, VI, No. 9, pp. 561-628

117 Case of General Sepsis following Peritonsillar Abscess. H. H. Martin, Savannah, Ga.
118 Sequelae of Eruptive Fevers. W. S. Britt, Eufaula, Ala.
119 Etiology, Prophylaxis and General Management of Enterocolic Infections in Infants. E. P. deBellard, Birmingham, Ala.
120 Neglected Points in Care of Infants and Young Children. W. P. Herbert, Asheville, N. C.
121 Dermatitis Venenata following Use of Hair Stain. J. L. Kirby-Smith, Jacksonville, Fla.
122 Successful Method of Performing Shockless Operations Based on Clinical Experience of 3,000 Cases. G. W. Crile, Cleveland.
123 *Treatment of Cutaneous Epitheliomas. J. H. Edmondson, Birmingham, Ala.
124 Surgical Anatomy of Regio Tonsillaris. A. G. Brenizer and A. M. Wisnant, Charlotte, N. C.
125 Symptoms of Goiter. E. G. Jones, Atlanta, Ga.
126 Brief Comparison of Technic of Broncho-Esophagoscopy with Jackson's and Brunings' Methods. R. McKinney, Memphis.
127 Removal of Superfluous Skin Around Neck for Relief of Headache: Report of Case. M. Henning, Memphis, Tenn.
128 Physicians Need Not Fear Progress. O. Dowling, New Orleans.
129 Sambon, the Man, and His Later Investigations of Pellagra. J. H. Taylor, Columbia, S. C.
130 Preventive Medicine. T. J. Dean, Union Springs, Ala.
131 Dental Clinics in Public Schools. A. B. Horn, Union Springs, Ala.
132 Alcohol as Public Health Problem. B. C. Keister, Roanoke, Va.
133 Gastrosuccorrhea Continua Periodica. J. R. Verbrycke, Washington, D. C.

123. Abstracted in THE JOURNAL, May 3, p. 1389.

Surgery, Gynecology and Obstetrics, Chicago

August, XVII, No. 2, pp. 137-270

134 Lateral Curvature. E. G. Abbott, Portland, Maine.
135 Treatment of Lateral Curvature of Spine. R. Whitman, New York.
136 *Surgical Treatment of Pelvic Thrombosis of Septic Origin. H. Jellett, Dublin, Ireland.
137 Prostatectomy. J. B. Deaver, Philadelphia.
138 *Regeneration of Bone from Periosteum. S. L. Haas, San Francisco.
139 *Mechanism of Stomach after Gastro-Enterostomy by Means of Roentgen Ray. J. H. Outland, E. H. Skinner and L. Clendening, Kansas City.
140 Intussusception of Stomach and Duodenum Due to Gastric Polypus. H. Wade, Edinburgh, Scotland.
141 Ileo-Appendicular Hernia of Appendix. L. W. Allen, San Francisco.
142 Indications for Abdominal Cesarean Section. R. Peterson, Ann Arbor, Mich.
143 Transplantation of Tumors in Animals with Spontaneously Developed Tumors. M. S. Fleisher and L. Loeb, St. Louis.
144 *Sigmoid Adhesion. H. A. Royster, Raleigh, N. C.
145 Acute Invagination of Ileum Secondary to Sarcoma of Small Intestine. C. J. Miller, New Orleans.
146 Suprapubic Prostatectomy. H. Cabot, Boston.
147 Bilateral Urinary Calculi: Report of Cases. D. N. Eisendrath, Chicago.
148 *Influence of Thyroid on Pregnancy and Lactation. W. M. Thompson, Chicago.
149 Cholecystostomy by Oblique Fistula. J. Weiner, New York.
150 *Gastrostomy Suggestion. E. M. McGuire, Buffalo.
151 Air in Ventricles of Brain, Following Fracture of Skull. W. H. Luckett, New York.
152 Juxta-Epiphyseal Sprain and Sprain Fracture of Lower End of Radius. K. Speed, Chicago.
153 *Apparatus—Anesthetometer—for Measuring and Mixing Anesthetic and Other Vapors and Gases. K. Connell, New York.
154 Modification of Skene's Retention Catheter. J. R. Eastman, Indianapolis, Ind.

136. **Treatment of Pelvic Thrombosis of Septic Origin.**—In 1911, two patients died in the Rotunda Hospital of pyemia, in one of whom, prior to death, a diagnosis was made of cellulitis in the region of the right utero-sacral ligament. In both of them at the post-mortem examination thrombosis was found in the ovarian veins. Jellett accordingly decided that, if there was another case presenting similar symptoms, and if there was any reason to think that thrombosis had occurred, he would interfere by operation and try to remove the affected vein or veins. Since then he has had to deal with four cases. In three of them an almost positive diagnosis of thrombosis was made before the operation, both from the physical signs and from the symptoms of the patient so strongly suggested the possibility of thrombosis that he opened the abdomen to explore. He found a hard, brawny swelling in the right broad ligament that could be traced to the infundibulo-pelvic ligament and along the course of the ovarian vessels upward beside the lumbar vertebrae. The tube was congested, but otherwise normal. He tied the uterine end of the broad ligament and incised the peritoneum over its face, and then with a little dissection was able to enucleate the mass in the broad ligament and to trace it upward along the course of the ovarian vessels, until he got up almost to the insertion of the vein into the vena cava. He tied the vein as high as possible and then removed the whole mass. The swelling in the broad ligament con-

sisted of the thrombosed branches of the ovarian vein, and the main trunk contained pus in its lower part, while its upper part was occupied by a thrombus that had not yet broken down. Three other similar cases are cited.

138. **Regeneration of Bone from Periosteum.**—On forty rabbits, two dogs and two cats, sixty-two observations were made by Haas. The experiments varied in duration from four to 249 days and extended over a period of two years. Under ether anesthesia the skin was shaved and painted with tincture of iodin. Incision was made through the skin over the selected ribs to the subcutaneous tissues. In case blood-clot was to be used in the experiment, the blood was collected in a sterile tube from the superficial vessels. Incision was next made through the muscles to expose the ribs, the latter being treated according to the demands of the experiment. The severed muscles were restored and the skin closed with silk sutures.

There are nineteen groups of experiments, in which the following methods are presented: 1. Simple subperiosteal resection. 2. Simple subperiosteal resection in which a small island of bone is allowed to remain in the periosteal gutter. 3. Simple subperiosteal resection of rib, remaining ends of which are covered with lead caps. 4. Elevation of rib from periosteal bed, from which it is separated by interposed muscle. 5. Same as 4, with addition of blood-clot in the periosteal gutter. 6. Extensive subperiosteal resection of rib, including costal cartilage, with addition of blood-clot to center of periosteal gutter. 7. Same as 6, excepting that the sternal side is blocked off with paraffin. 8. Same as 6, excepting that both sternal and vertebral sides are blocked off with paraffin. 9. Subperiosteal resection with paraffin at both ends, the interval between remaining empty. 10. Elevation of and removal of a section of the rib, the free ends being placed inside of a rubber tube.

Some of the deductions made by Haas are as follows: 1. The regeneration of bone may take place in two ways: (a) development of cartilage preceding formation of bone; (b) direct formation of bone. The experiments did not show whether the new bone arises from the periosteum or from the remaining bone stumps. 2. In three instances in which large bone pieces were left behind the amount of regeneration was very limited, and only in one case was the regeneration marked. 3. The periosteum alone did not regenerate bone. 4. The regeneration of bone occurred always from the point where the bone and periosteum diverged, and in general the amount of regeneration was directly proportional to the duration of the experiment. 5. There is marked increase of bone production in the presence of blood-clot. 6. It is possible that the new bone may have formed in the region of the blood-clot, and that subsequently it may have extended toward the costal cartilage, but this could not be definitely established. 7 and 8. Periosteum in the presence of blood-clot has the power of regenerating bone. 9. In the absence of blood-clot there was no evidence of regeneration of bone. 10. No evidence of new bone was found within the tube; on the contrary, there was definite evidence of necrosis of the enclosed bone. The most striking feature of the experiments is the influence of blood-clot in stimulating the formation of new bone. Another interesting feature of these experiments was the absence of the regeneration of bone from pre-existing bone which had been separated from its periosteum.

Haas summarizes his paper as follows:

> In cases in which the rib was isolated from its periosteal bed there was never any evidence of proliferation from the denuded bone. In fact, in the majority of cases the raised ribs became atrophic. In cases in which the severed ends of the denuded ribs were inserted between muscle fasciculi there was never any evidence of regeneration and where fractures were produced in the periosteum-free bone no evidence of union was found. These results are of considerable interest in view of the findings of Macewen, and further experiments are necessary to show whether the ribs differ from the long bones of the extremities in this respect. The constant occurrence of new bone at the angle of separation between the elevated rib and the periosteum raises the question of the relative importance of periosteum and bone in the regenerative process. If one assumes that the newly formed bone arises from the pre-existing bone, one would expect that the new bone should extend along the raised rib as well as in the periosteal gutter. The experiments do not show this to be the case. Although the new bone was always formed at the angle between the rib and the periosteum, it extended only along the periosteal gutter. It cannot be denied that the bone may have had some influence in originating the regenerative processes, but it is significant that the regeneration occurred only where periosteum was also present, and one cannot but conclude that the periosteum must have acted in some other way than by merely passively directing the distribution of new bone. It may be that the periosteum possesses some power, possibly of a chemotactic nature, which determines the direction in which the new bone shall grow, but from these experiments there seems little doubt that it also plays some important part in the actual regenerative process. In several experiments where the chondrocostal junction was removed it was noted that new bone was formed near the site of the junction. In practically all cases there was also regeneration of cartilage, and in some cases the new cartilage and the new bone were continuous. In the cases in which the new bone was separated from the cartilage it is difficult to explain its presence unless it arose from the periosteum. It is possible that the dependent position of this region when the animal is moving around may have caused the accumulation of blood-clot in this area, and that the combined action of the periosteum and blood-clot was responsible for the formation of the new bone.

139. **Gastro-Enterostomy.**—The authors hold that gastro-enterostomy, if properly done, is a drainage operation. After gastro-enterostomy, if the stoma is at the lowest part of the stomach in the erect position, the food leaves the stomach almost exclusively by the gastro-enterostomy opening. Under these conditions the stomach is emptied with great rapidity. They claim that gastro-enterostomy should be done only in the presence of pyloric stenosis, or pyloric spasm due to duodenal or gastric ulcer. The gastro-enterostomy opening should be made large and placed as close as is permissible to the pyloric antrum. In cases in which the gastro-enterostomy opening does not quite drain the stomach, the food leaves both by means of the stoma and the pylorus. Even in these cases, however, the stomach empties itself faster than normal. The authors believe that the clinical failures after gastro-enterostomy are probably due to the cases of faulty implantation of the stoma.

144. Abstracted in The Journal, January 11, p. 150.

148. **Influence of Thyroids on Pregnancy.**—Thompson experimented on pregnant bitches with the object of ascertaining the effect of disturbances of the thyroid apparatus during the height of sexual activity. In all, nine dogs were operated on. In five dogs one lobe of the thyroid was removed. In two one lobe was removed and the remaining thyroid tissue badly bruised and ligated and in one both lobes and some parathyroid were removed. In one both lobes were removed; and one lobe and the hypertrophied thyroid were removed from another dog and implanted in the site of the excised gland. Dogs in which one lobe of the thyroid was removed with no accidents gave birth to normal puppies and had abundant milk. The dog which had a severe hemorrhage during the operation, in the control of which there was sufficient injury to the remaining thyroid and parathyroids, equivalent to a ligation of the artery, had one puppy born dead and succumbed herself. One dog in which double thyroidectomy was performed together with the removal of some of the parathyroid tissue, had symptoms of tetany; gave birth to five living puppies, but appeared to have no milk, and the dog and puppies all died in a few days. The dog on which a transplantation was done escaped. The removal of one thyroid lobe has comparatively little influence on pregnant dogs or their pups after birth, but the removal of one-half, with injuries sufficient to destroy the function of the remaining thyroid and parathyroid tissues, is followed by tetanic seizures and death of mother and puppies. The total removal of the thyroids, with some parathyroid tissue, is followed by trembling, rigidity and after the birth of the puppies the milk was scanty, and later the mother and puppies succumbed.

Thompson concludes, therefore, that the thyroid gland, situated as it is in the neck, should have any sympathy with sexual functions if it was originally a gland concerned with digestion, is, to say the least of it, extremely unlikely; but on the contrary likely enough if it originated from a glandular organ in connection with the sexual structures of the paleostracean ancestors. There is clinical and experimental evidence of its connection with the sexual system of man and higher mammals through its secretion, in that a lack of thyroid secretion influences sexual activity adversely; that sexual activity, whether it be physiologic or pathologic, causes a hyperactivity of the thyroids, and that this hyperthyroidism constitutes an index to the toxemia of pregnancy to counteract which the thyroids raise their antitoxic protective power. There is abundant clinical evidence in support of the theory that what is termed a physiologic hyperactivity of the thyroid is a valuable safeguard against the toxemia of pregnancy.

150. **Gastrostomy Suggestion.**—When the catheter is introduced into the stomach in any method, McGuire passes it immediately through the pylorus into the duodenum. This procedure enables one to proceed with feeding at once, without fear of tension on the stomach sutures. The catheter is borne well by the duodenum, as McGuire has never seen any irritation due to it. In the course of three or four days the catheter is withdrawn into the stomach, the exact point of the catheter being previously marked. The advantages of this method in desperate cases are self-evident. It not only offers a safe method for the immediate introduction of food, but also insures a certain and definite means of introducing salt solution or tap water into the circulation. It offers the same advantages to gastrostomy operations that McArthur's procedure gives to surgery of the biliary passages.

153. **Anesthetometer.**—The anesthetometer devised by Connell is an apparatus for the automatic measuring and mixing of vapors and gases used to maintain anesthesia and for other purposes. The apparatus consists, first, of a gas meter as the measuring and motive mechanism; combined with, second, an ether reservoir from which volatile liquid is fed in accurately adjustable amounts; into, third, a vaporizing chamber; which is combined, fourth, with a trip-valve by which gases in any quantity may be mixed in accurate percentage. By the use of this apparatus, that accuracy of dosage in the administration of gaseous drugs so long deemed necessary for liquids and solids is secured. By the use of the anesthetometer, particularly in the intratracheal and intrapharyngeal delivery, the dosage of gaseous anesthetics becomes automatic, yet under the continuous observation and control of the operator. Thus efficiency and safety in prolonged anesthesia are secured, and the shock and sequelae of ether anesthesia are largely eliminated.

Wisconsin Medical Journal, Milwaukee

August, XII, No. 3, pp. 63-94

155 Protection of Eyes of Schoolchildren. N. M. Black and F. A. Vaughn, Milwaukee.
156 *Auscultatory Blood-Pressure Phenomenon. L. M. Warfield, Milwaukee.
157 Fever, with Obscure or Absent Physical Findings. E. Evans, La Crosse.
158 Tuberculosis Column. M. P. Ravenel, G. E. Seeman and Others, Milwaukee.

156. Abstracted in THE JOURNAL, June 22, 1912, p. 1970.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

August 2, XXXIV, No. 5, pp. 95-118

1 Acid-Fast Bacillus from Case of Ulcerated Throat, Resembling in Its Morphology, when Stained by Neisser's Method, the Klebs Loeffler Bacillus. C. H. Shearman.
2 Fatalities due to Present Unrestricted Sale of Dangerous Drugs in Tablet Form. L. W. Bickle.
3 Typhoid Epidemic. B. Foulds.

August 9, No. 6, pp. 119-142

4 Uterine Fibroids and Pregnancy. W. Trethowan.
5 Case in Which Vaginal Cesarean Section Was Performed. W. J. S. McKay.
6 Two Cases of Uterine Myomas Complicating Pregnancy. W. T. Chenhall.

August 16, No. 7, pp. 143-166

7 Present Small-Pox Epidemic in Sydney. W. G. Armstrong.
8 Vaccination and Immunity. D. A. Welsh.
9 Immunity in Relation to Small-Pox. H. G. Chapman.
10 Acute Abdominal Pain and Vaccination. P. L. Hipsley.

August 23, No. 8, pp. 167-190

11 Some Cases of Injury to Lens and of Foreign Body in Eye. J. L. Gibson.
12 Romance of Medicine: Specialized Knowledge of Hippocratic School. J. W. B. Bean.
13 Recent Advances in Surgical Treatment of Gastro-Intestinal Stasis due to Ptosis of Different Parts of Alimentary Canal. T. J. B. Kelly.

British Journal of Children's Diseases, London

September, X, No. 117, pp. 385-432

14 *Bacillus Coli Infection of Urinary Tract in Infancy and Childhood. N. P. Marsh.
15 Fatal Cases of Eczema in Children. P. S. Hichens.
16 *Appendicitis in Children. G. C. E. Simpson.
17 Diphtheria of Esophagus. J. D. Rolleston.
18 Case of Hyperactivity of Anterior Lobe Combined with Deficient Action of Posterior Lobe. E. C. Williams.

14. **Colon Infection of Urinary Tract.**—Pyelitis and cystitis, Marsh claims, are much more common in infancy and early childhood than is generally supposed. Mysterious febrile attacks, especially in females, should therefore not be attributed to dentition or gastro-intestinal indigestion until a careful examination of the urine for pus-cells and organisms has been made. The infection may be an ascending one owing to direct infection with feces through the urethra, or it may be a descending one owing to direct passage of the organisms from the bowel to the kidney; or lastly, and in rare cases, the infection may be carried by the blood-stream. The most satisfactory treatment is that by alkalies. The best drug for this purpose, Marsh finds, is the citrate of potash, which must be given in doses varying from 5 to 20 gr. every three or four hours. The urine generally becomes alkaline in one to three days, after which, as a rule, the temperature quickly falls, the symptoms subside, and the pus-cells and organisms rapidly diminish in number. If digestion is disturbed or diarrhea is set up by the citrate of potash, the alkalinity may be maintained by 5 to 10 gr. of bicarbonate of sodium or potassium given every two or three hours. Marsh has found citrate of soda added to the infant's bottle equally valuable under these circumstances. In cases which do not respond to this method, urinary antiseptics, after first rendering the urine acid, or autogenous vaccines should be tried. In spite of all treatment many cases became chronic; in these, acute exacerbations alternate with long periods of quiescence, but the urine never becomes entirely free from pus-cells and organisms.

16. **Appendicitis in Children.**—In view of the frequency—the increasing frequency and severity—of appendicitis in children, Simpson says, we should lose no opportunity of impressing on the public the possible severity of abdominal pain in a child. And he urges on the profession the advisability of early operation. Temporizing, waiting for an interval, or for more definite signs to develop, may be attended by most serious consequences. Early operation is the treatment of appendicitis in adults; it is even more important in children, in whom fewer cases remain localized to the appendix itself, in whom there is less tendency for adhesions to form, less chance of a localized abscess, and the disease runs a more rapid and severe course. In all stages of acute appendicitis in children operation should follow immediately on diagnosis; the signs and symptoms may be slight, with very serious conditions in the abdomen, and only surgeons with a very wide experience may, in rare cases, be justified in waiting for convalescence before performing their operation.

British Medical Journal, London

September 6, II, No. 2749, pp. 585-640

19 Educational Number, Sessions 1913-1914.

Edinburgh Medical Journal

September, XI, No. 3, pp. 193-288

20 Study of Bitemporal Hemiopia. H. M. Traquair.
21 *Antemortem Thrombosis in Right Heart and Pulmonary Arteries as Cause of Death in Lobar Pneumonia. R. A. Fleming.
22 *Duodenal Diverticula and Duplicature of Duodenal Wall: Report of Three Cases. D. P. D. Wilkie.
23 *Some Rare Uterine New Growths—Simple Papilloma of Corpus Uteri. Primary Tubercle of Cervix, Diffuse Nodular Fibrosis. F. W. N. Haultain.

24 Conduction Defects in Heart. G. D. Mathewson.
25 *Obstruction of Intestines. J. C. Renton.
26 Appliance for Extension of Limb in Operative Treatment of Fractures. C. W. Cathcart.
27 Medicine and Poetic Muse. J. Young.

21. **Antemortem Thrombosis.**—If there is a danger of cardiac and pulmonary thrombosis, then stimulation, particularly of the heart, Fleming points out, would be the routine treatment for all cases in which such thrombosis *may* be *expected* to occur. Every case of croupous pneumonia should be treated early, and Fleming believes continuously, by the administration of a direct cardiac tonic, such as digitalis or strophanthus. Such diffusible stimulants as spirit of chloroform and aromatic spirit of ammonia should be given at once if the heart shows any signs of difficulty. Oxygen may counteract the excess of CO_2, which, according to Wiener and others, aids clotting. Fleming deems that it might be wise to depart from the usual plan of preventing any change of posture of the patient in bed. In fact, altering the position of the patient may be actually beneficial. The use of antithrombin ferment, he says, would be ideal, but at present it is not within the scope of practical therapeutics. Citric acid in 30- to 60-grain doses, four hourly, has been much commended in cases of venous thrombosis. If convinced that antemortem clotting is a cause of death in pneumonia, bleeding should never be performed unless in particularly robust patients, and never for what looks like engorgement of a dilated right heart. It may only aid thrombosis which has already begun. Auscultation of the pulmonary area should in any case be first carefully carried out.

22. **Duodenal Diverticula.**—The first of Wilkie's three cases is of interest in that a large duodenal diverticulum with an accessory pancreas in its wall occurred along with the curious condition of duplicature of the duodenal wall. In the other two cases—typical "diverticules perivateriens"—there was no evidence of pancreatic tissue in the walls of the diverticula, nor, on the other hand, was there any sign of distention or dilation of the duodenum. In two of these cases the presence in each of a *diverticulum in close anatomic contiguity with the* mon bile duct, together with the signs of stasis in that t, without there being any intrinsic obstruction of its en, offered strong presumptive evidence that there was some such etiologic relationship. It is possible that in both cases the stagnation of duodenal content in the diverticula led to a chronic catarrh of the duodenum, and that swelling of the papilla accounted in part for the biliary stasis which existed. Wilkie believes that diverticula of the second and third parts of the duodenum are of congenital origin. In the first part of the duodenum three types of diverticula are met with, the congenital, the ulcer diverticulum, and the acquired wide-mouthed diverticulum of the duodenal vestibule. Congenital duplicature of the duodenal wall may occur either along with or independently of diverticula; it is probably due to the persistence of a condition normally found at an early period of fetal life, and is, in fact, but a mild degree of that arrest of development which in its most pronounced form is met with in cases of congenital atresia of the duodenum.

23. **Rare Uterine New Growths.**—Haultain cites three cases: (1) simple papilloma of corpus uteri, (2) primary tubercle of cervix, (3) diffuse nodular fibrosis.

25. **Obstruction of Intestines.**—In Renton's last thirty-three cases of acute intestinal obstruction due to various causes there have been three deaths. There were five patients ill with intussusception and they all recovered. The important points which Renton urges should be remembered in connection with obstruction of the bowels, are: 1. Early diagnosis and early operation. 2. Where the obstruction is very acute, drainage by Paul's tube or other method. 3. The great importance of continuing drainage until the patient has sufficiently recovered to bear an operation, which may take three-quarters of an hour.

Glasgow Medical Journal

September, LXXX, No. 3, pp. 161-239

28 *Operation for Acute Appendicitis—Primary Closure of Abdominal Wound. J. G. Andrew.
29 Intestinal Toxemia in Its Relationship to Obstetric and Gynecologic Affections. A. L. M'Ilroy.
30 Miners' Nystagmus: Stage Prior to Nystagmus. W. B. I. Pollock.
31 Roentgen-Rays in Malignant Disease. W. F. Somerville.
32 Differential Diagnosis of Manic-Depressive Insanity and Dementia Praecox. R. M. Marshall.

28. **Operation for Acute Appendicitis.**—Andrew maintains that drainage in cases of gangrene and of abscess is not necessary and often dangerous. Drainage can be dispensed with if the following two conditions are fulfilled: (a) removal of the cause, (b) thorough closure of the cecal opening. If these conditions are fulfilled, then Andrew says it is possible to obtain primary union where the very worst possible intra-abdominal conditions prevail, and with less risk than if drainage were adopted either by tube or by packing. Andrew analyzes his eighty-five cases so treated. In the greater proportion of the cases the appendix was gangrenous, either in whole or in part, and quite unprotected by adhesions from the general peritoneal cavity. In no less than one-third of the cases the appendix had perforated, and a coprolith was either lying free in the general peritoneal cavity or in process of extrusion. The accompanying peritonitis was either local or general; it was quite impossible in some of the cases to be certain how far the infection had spread. Though not stated in the summary of the cases, if any doubt existed as to the involvement of the pelvic peritoneum a small suprapubic incision was made, and the pouch of Douglas mopped out. In a smaller proportion of the cases a localized abscess was present, completely shut off and usually very foul-smelling. In almost every case the offending appendix was removed, and every care taken to effectively close the cecal attachment. Iodoform powder was dusted over the stump in the earlier cases; iodin or iodoform emulsion, either alone or combined with the subcutaneous injection of a bacillus coli vaccine, in the later cases.

In eighty out of the eighty-five cases the wound was primarily closed without drainage. The cases drained were those in which the appendix could not be found or those in which the stump could not be effectively closed. The subsequent introduction of an intra-abdominal drain at the seat of the appendix was necessary in only two cases, and in these Andrew was in doubt as to the satisfactory closure of the stump. Fifty-seven out of the eighty-five cases healed primarily. In twenty-seven there was some infection of the wound; in two the wound was restitched. In no case was a drainage tube necessary for the wound alone. In three of the patients who died the wound had healed or was in process of healing without sepsis, and that with a pronounced peritonitis in progress. There were seven deaths. In one case death occurred six hours after admission; this case was drained. In every case save one death was due to general peritonitis, either in existence at the time of the operation or becoming general subsequent to operation.

Indian Medical Gazette, Calcutta

August, XLVIII, No. 8, pp. 293-336

33 Gleanings from Calcutta Post-Mortem Records: Diseases of Nervous System. L. Rogers.
34 Some Signs of Typhoid and Its Treatment. P. K. Chitale.
35 Salvarsan on Tea Estates. J. A. Valentine.
36 Psychology of Anus. O. B. Hill.
37 Etiology of Malaria in Bengal. S. Sen.
38 *Rare and Probably Undescribed Residual Eruption in Small-Pox. L. G. Fink.
39 Sterilized Pus for Treatment of Infections and Sterilized Cancer Inoculations. V. B. Nesfield.
40 Case of Serum Therapeutics. M. Ram.

38. **Residual Eruption in Small-Pox.**—On April 28, Fink's patient, a male, aged 22, was for an hour in the house of a person in the scaling stage of the disease. On May 20, he had a temperature of 104.6 F. He was kept under observation the next day, and on May 22, he was admitted and segregated, as eruptions appeared on his face, forearms and body. He stated that he had had fever, backache and pains in his joints from May 18, but had not reported feeling ill. He had two fair-sized vaccination scars on his left arm; said to have been vaccinated fourteen years previously, when he was 8 years old. He had not had small-pox before and had never been inoculated. He had also not been revaccinated till four days after his admission, but this was not successful. He was then

in the incubation stage of small-pox. Eruptions first appeared on the night of May 21, but these were not seen till the following morning and the question of diagnosis, small-pox or chicken-pox had to be decided. As twenty-one days appeared to be a very long incubation period for small-pox, the further development of the eruptions was carefully watched.

The following are the principal points noted: The vesicles developed slowly as in small-pox and scabs began to form on the face first on the tenth day. The majority of the vesicles were globular, but some were irregular in shape. They were closer set on the face than on the body; closer on the forearms than on the arms; closer on the legs than on the thighs; closer on the back than on the front of the body; closer on the upper than on the lower part of the back; they were more numerous on the extensor than on the flexor surface of the extremities; they were well-developed on the hands and feet and formed well-marked "seeds" in the palms and soles. The majority of the vesicles showed no umbilication and appeared superficial. On pricking some collapsed and others did not. Secondary fever occurred when the stage of pustulation began. The slow development of the eruptions, their appearance first on face and forearms, their density in the areas above-mentioned, secondary fever, and the presence of "seeds" in the palms and soles left no doubt as to the disease being small-pox.

On September 21, two and a half months after he was convalescent, he had an attack of fever, but the temperature was not recorded. The following morning papules appeared and some of these developed into vesicles. A few of these vesicles became pustular and scabs formed. The lesions were in every respect similar to those of a mild case of chicken-pox or modified small-pox. The patient had not been in contact with any person suffering from either of these diseases. The eruptions were most numerous on the back and chest, and there were a few on the face and extremities. They were all very superficial and the scabs were thin. On examining the hands two "seeds" were found on the palmar aspect of the left hand, and one, resembling the "dark, black area" described by Cameron and really a vesicular "seed," on the right middle finger. Shortly after the eruptions appeared, the glands in the axillae and in the femoral region were swollen to the size of a pigeon's egg. The scabs had all fallen off by October 4, and the patient was practically well. No secondary fever occurred with the residual eruptions..

Journal of Tropical Medicine and Hygiene, London

August 15, XVI, No. 16, pp. 241-256

41 Clinical Study of Malarial Fever in Panama. J. P. Bates.
42 New Flagellate, *Crithidia Hyalommae*, Sp. Nov. Found in Tick *Hyalomma Aegyptium* (Linnaeus, 1758). W. R. O'Farrell.

Lancet, London

September 6, II, No. 4697, pp. 707-782

43 Present Position of Postgraduate Medical Education in United Kingdom. C. O. Hawthorne.
44 Pain and Sleeplessness. R. Jones.
45 Pellagra in England. G. S. Blandy.
46 Case of Pellagra. J. W. E. Cole.
47 Effects of Ductless Glands on Development. H. Gilford.
48 Military Experiences of Traumatic Aneurysms. B. Soubbotitch.
49 Value of Anoci-Association (Crile). J. H. Chaldecott and C. W. G. Bryan.

Practitioner, London

September, XCI, No. 3, pp. 301-444

50 Treatment of Anemia. W. H. Willcox.
51 *Gynecologic Emergencies. R. D. Maxwell.
52 *Some Pelvic Disorders in Relation to Neurasthenia. C. Oldfield.
53 Intestinal Obstruction. J. E. Adams.
54 Recent Literature on Typhoid. C. B. Ker.
55 Literature on Public Health. J. Priestley.
56 Treatment of Phthisis by Intensive Nascent Iodin Administration. E. G. Reeve.
57 "Rest" Treatment of Pulmonary Tuberculosis. H. Coppock.
58 Pathology of Migraine. J. R. Charles.
59 Calcareous Deposits in Blood-Vessels. W. F. Somerville.
60 Cotton-Seed Extract and Pituitary Extract during Lactation. J. A. H. White.
61 Acute Abdomen on Board Ship. G. Shaw.
62 Tabes with Unusual Distribution of Deep-Pain Loss. T. A. Williams.
63 Case of Rat-Bite Disease. F. Nicholson.

51. **Gynecologic Emergencies.**—Maxwell's paper is limited to the consideration of three affections, which all have this one factor in common—the sudden supervention of acute abdominal symptoms in a woman of apparently normal health. These are: (1) ectopic gestation in its numerous forms; (2) twisting, and the secondary changes dependent thereon, of ovarian cysts. In the first, the difficulty of diagnosis, at least in acute rupture of the tube, is much less than in the other two; (3) "ascending inflammations" of the pelvic peritoneum, to which the female abdomen is specially predisposed by virtue of the open celomic ostium.

52. **Pelvic Disorders and Neurasthenia.**—In 98 prolapse cases operated on by Oldfield prior to March, 1911, and investigated after October, 1911, there were 2 complete recurrences, 3 partial, 3 with symptoms unexplained by physical signs, and no case of neurasthenia; 143 fibroids with 3 patients who had neurasthenic symptoms; 2 of them soon recovered, and the other was a confirmed neurasthenic, and now has mental symptoms; 15 other patients had some symptoms, of whom 2 had renal calculus, 1 had hydronephrosis, 2 developed acute appendicitis, and 2 had gonorrhea. With appropriate treatment, all these patients have done well with the exception of one with renal calculus, who still has some renal pain with pyuria. In 104 major operations in connection with pregnancy, consisting of extra-uterine gestation, classical and vaginal cesarean sec-extra-uterine gestation, classical and vaginal cesarean sections, tumors with pregnancy, acute appendix and gall-bladder lesions, only one neurasthenic case was found, and it appears that domestic unhappiness accounts for this case. Since reporting these results Oldfield has performed nearly 200 more prolapse operations and forty-five more hysterectomies for fibroid tumor; although these cases have not been followed up, as far as one knows not a single patient has neurasthenia. There were five deaths in 345 operations reported in the three papers referred to, and in the subsequent 240 cases not a single death occurred. Oldfield holds that pelvic disorders have no specific action in causing neurasthenia. Pelvic complaints, with the exception of disorders of menstruation, are as often as not unassociated with physical signs, and due to a general neurasthenia. Certain conditions, such as slight exposure of vaginal wall, cervical erosion, laceration, retroflexion of uterus, prolapsed ovary, ovaritis and cystic ovary, do not produce symptoms, and do not require treatment. Chronic pelvic inflammation, calling for operative treatment, sometimes exists apart from recognizable tumor formation. Greater care is necessary before, during and especially after, operation, in order to prevent postoperative neurasthenia. Before operating on neurasthenics with gross disease, and before operating on patients without demonstrable physical signs, Oldfield says, the surgeon should seek the advice of the physician.

Journal de Médecine de Bordeaux

August 24, LXXXIV, No. 34, pp. 548-556

64 The Clinical Forms of Chronic Tuberculosis in Infants. R. Cruchet.

Lyon Médical, Lyons

August 24, XLV, No. 34, pp. 297-328

65 The Phenolsulphonephthalein Test of Renal Function. G. Mouriquand.
66 *Atrophy of the Uterus as Result of Lactation. (Maladie de Basedow et maladie de Frommel.) Maurice.

66. **Atrophy of the Uterus as Result of Lactation.**—Frommel in 1882 published an article in which he said that as a result of lactation the uterus frequently undergoes such an extreme degree of involution that it cannot afterward be restored to normal size. He recommended that the genital organs be examined frequently during lactation and if excessive decrease in size of the uterus be observed that nursing be stopped. Maurice reports a case of excessive secretion of milk in a young woman while nursing her first baby. It was followed by uterine atrophy, so that she never had another pregnancy. During lactation swelling of the thyroid and marked symptoms of hyperthyroidism had been noted. It is known that utero-ovarian atrophy frequently occurs in association with

exophthalmic goiter, and Maurice concludes that there is a physiologic antagonism between certain glands which stimulate the cortex and vagus (such as the ovaries and pancreas), and others which excite the sympathetic system (such as the thyroid and mammary gland). Hence nervous women who show that their sympathetic nervous system is especially sensitive should be supervised with particular care during the nursing period.

Presse Médicale, Paris

August 27, XXI, No. 70, pp. 705-712

67 Cytolysis. (Phénomènes de cytolyse.) L. Bory.
68 *Nodose Erythema. (Valeur séméiologique de l'érythème noueux.) Aubert.

August 30, No. 71, pp. 713-720

69 Relation between Appendicitis and Diverticulitis. M. Guibé.

68. **Nodose Erythema.**—Aubert warns that this variety of multiform erythema calls for a diagnostic tuberculin test as *it is so often a manifestation of the earliest phase of infection* with the tubercle bacilli. It is far wiser and safer to let the family know at once that the trouble is constitutional and not a mere transient skin disease. Telling the family that the trouble is a bacillosis sounds the alarm and gains consent to appropriate measures. Otherwise treatment is restricted to local applications or less. He reports four cases to show the necessity and extreme advantage of treatment on the basis of this conception of "pretuberculosis." He adds that the text-books should cease to class erythema nodosum as a separate morbid entity.

Revue de Médecine, Paris

August, XXXIII, No. 8, pp. 601-671

70 Diabetes Mellitus and Acetonemia. (Progrès de nos connaissances sur la pathogénie et le traitement du diabète sucré et de l'acétonémie.) R. Lépine.
71 Anastomoses between the Greater and Lesser Circulation in Normal and Diseased Conditions. C. Trunecek.
72 Asthenic Form of General Paralysis; Four Cases. R. Benon and H. Cier.
73 Manifestations of the Psychasthenic Diathesis. S. Lubetzki.
74 *Hematuria Caused by Urotropin given in Typhoid Fever. (L'hématurie au cours de la fièvre typhoide traité par l'urotropine.) J. Belkowski.

74. **Hematuria Caused by Hexamethylenamin.**—Hematuria from this cause is a comparatively rare occurrence. In 1906 Karkowski could find only five cases in the literature. Crowe in 1912 reported seven cases among ninety-five patients treated. Belkowski has encountered four cases and reports in detail one which occurred in a fatal case of typhoid. The changes found at necropsy were confined to the bladder, the *kidneys not being affected. Hematuria is more apt to occur in cases* with very high temperature, as this favors the decomposition of the hexamethylenamin into formaldehyd and ammonia. These four cases occurred among forty typhoid patients who were given doses of 0.5 or 0.6 gm. three to four times a day. *The hematuria did not seem in any case to influence* the typhoid unfavorably and it stopped when the hexamethylenamin (urotropin) was discontinued.

Revue Médicale de la Suisse Romande, Geneva

August, XXXIII, No. 8, pp. 577-660

75 *Emotion as a Factor in Mental Disease. (Le rôle de l'émotion dans la genèse des psychopathies.) P. Dubois.
76 Neuritis Following Prolonged Exposure to Cold. (Névrites tronculaires multiples et graves, des membres supérieurs consécutives à un refroidissement prolongé.) E. Long and M. Roch.
77 Hemorrhagic Myeloid Leukemia; Six Cases. H. Ter-Barseguian. *Commenced in No. 7.*
78 The Test for Urochromogen in the Urine. (La réaction de Moriz Weisz dans les urines.) E. Cottin.
79 Heating the Ether for General Anesthesia. (La narcose à l'éther chauffé.) C. Julliard.

75. **Emotions, Psychanalysis and Psychotherapy.**—Dubois here describes his conception of the causes of psychopathies, the *théorie intellectualiste* which for years he has been teaching. He reiterates that every sentiment is an emotion; every sentiment generates at once a tendency to motion, toward or away from, and this reaction of attraction or repulsion is the primary phenomenon of life—the instinct of self-preservation. Whether the individual is conscious of it or not, the process is always the same. There is first perception of the stimulus, then the brain passes logical judgment *on the stimulus and it is only after the stimulus has been thus weighed and judged that the emotion follows*, bringing with it the action. Dubois insists that logic is a single and absolute rule which every one obeys, everyone without exception. The mind works like an adding machine that always gives the same sum, given the same figures to add. This logic of the human *mind is impeccable* in old and young, great and small, unless the brain is profoundly diseased. But the premises on which the logical conclusion is based differ for all, and these premises are the result of multitudes of conscious and rudimentary ideas inherited or imprinted by education. The premises depend on our capacity for estimating things in their true proportions. The inability to estimate events at their true value entails a morbid judgment, and this is the cause of the exaggerated emotivity of psychopathic patients. Rational educative psychotherapy and prophylaxis aim to train them to formulate their premises more correctly; with correct premises comes sound judgment.

The psychopath regards minor happenings and reacts to them as the normal regard and react only to serious tragic events. The emotional crisis is an actual orgasm which sets a whole series of organic apparatus at work; this activity *entails fatigue*—and emotional fatigue, Dubois adds, is about the most pernicious. The fatigue brings with it a number of disagreeable sensations which fix anew the worried attention of the patient. The physiologic disturbances caused by the psychopathic exaggerated reaction, gastro-intestinal disorders, tachycardia, neuralgia, headache or the like, add a new source of emotions to the original one, and the original phobia is followed by phobophobia. There is besides this the physiologic law that repetition occurs more easily each time. It is not necessary to dig into the past for a sexual trauma, as Freud does; *the obvious cause will generally suffice* for effectual psychotherapy, convincing the patient that his premises are erroneous. Then the whole structure of his phobia falls to pieces and he is cured. A frequent phobia Dubois has encountered is the dread of microbes; most of these patients have never seen microbes *under the microscope and have no idea of* their actual size. One of his patients had a phobia that his tailor had sewed tubercle bacilli in with the silk in making buttonholes. The simple dread of contagion or an exaggerated idea of the toxicity of certain poisons *explains many such cases without search for an erotic factor.*

The psychasthenic imagine absurd things and they sometimes know this. Treatment aims to prove to them that it is their emotional state which impairs their logic. This tranquilizes them *as they realize that they* will estimate things at their true value better when their emotion has quieted down. He gives a number of concrete examples to illustrate these views.

Semaine Médicale, Paris

September 3, XXXIII, No. 36, pp. 421-432

80 *Duodenal Ulcer in Children. L. Cheinisse.

80. **Duodenal Ulcer in Children.**—Bichat and Imfeld have reported a successful operative case of duodenal ulcer in a girl of 14 and a boy of 15, and Cheinisse states that duodenal ulcers have been found at necropsy of very young *children*, even infants. Helmholz and Schmidt have reported *finding* evidences of healed ulcers at necropsy of children who had died from other causes. In Schmidt's case the child was only five weeks old. In Bichat's case an interval of twenty-four hours had elapsed between the perforation of the duodenal ulcer and the operation and yet the child recovered.

Berliner klinische Wochenschrift

August 25, L, No. 34, pp. 1553-1596

81 *Treatment of Syphilis. F. Bering.
82 Antibodies Derived from Without. (Ueber heterogenetische Antikörper.) E. Friedberger and F. Schiff.
83 *Electric Treatment of Obesity. (Elektrotherapie gegen Fettleibigkeit.) V. Carulla.

84 *Thrombosis in Measles. (Ueber Thrombenbildung bei Masern, mit bes. Beteiligung der Lungenarterien.) W. Lutz.
85 Operative Treatment of Neck of Bladder and Posterior Urethra. (Zur operativen Behandlung der Erkrankungen des Blasenhalses und der hinteren Harnröhre.) E. Wossidlo.
86 *Pathology of Spleen Functioning. I. (Zur Pathologie der Milzfunktion.) H. Eppinger. Commenced in No. 33.
87 By-Effects of Salvarsan. (Ueber Salvarsanstörungen.) W. Gennerich.

81. **Treatment of Syphilis.**—Bering insists that every physician who has anything to do with *the treatment of syphilis* should familiarize himself with the technic for detecting the spirochetes so that he can seek for them at once without waiting for symptoms to develop. Another point on which he lays great stress is that local treatment of primary lesions and skin and mucous membrane lesions should never be omitted; they should be cut out when possible. If excision is not practicable, he injects a 1 per cent. solution of mercuric chlorid, applies the thermocautery and dusts afterward for a long time with calomel. Otherwise the spirochetes are liable to lurk for years in or around these lesions. In one of his cases a woman was *infected by her husband ten* years after his primary chancre. The Wassermann reaction is more likely to be positive when the syphilitic manifestations are numerous and extensive; with monosymptomatic syphilis it was positive only in 37 per cent. of his cases. He is convinced that even reinfection is no guarantee that all the spirochetes from the primary infection have been exterminated.

The cerebrospinal fluid findings in 285 cases are listed to illustrate the remarkable frequency of changes in the fluid in all stages of syphilis, even the very earliest, possibly while the blood-Wassermann is still negative. Besides its diagnostic value, lumbar puncture often has a decided therapeutic influence on headache and other signs of abnormal pressure on the brain. He regards salvarsan as superior to mercury in the primary stage, but three or four repetitions of a dose of 0.3 or 0.4 gm. are necessary. He warns against ever going above *this dose; in later stages he prefers 0.1 or 0.2 gm., repeated* eight or ten times. The older the syphilis the less effectual is salvarsan, and mercury is superior to it in the secondary and third stages; he combines the two but pushes the mercury. Inadequate treatment does actual harm, merely rousing the spirochetes without exterminating them. The discovery of the spirochete is by far the greatest progress realized in the matter of syphilis to date, he declares. This enables us to differentiate the disease when it has just got a foothold and root it out at once.

83. **Electric Treatment of Obesity.**—Carulla reports a case in which he applied Bergonié's method and reduced the weight of the patient, a man of 40, from 174 to 108 kilograms, a reduction of over 145 pounds. The method is based on the muscular contraction that follows an electric discharge, and Bergonié has evolved a technic which permits such extensive and repeated contractions of different groups of muscles that the muscles get a maximum of exercise with the minimum of fatigue, thus providing ideal conditions for correcting the tendency to obesity. He uses the secondary current from an induction coil with a tension of 8 or 10 volts, the current interrupted by a metronome with a beat of 120 to the minute. *This current is brought to the body through electrodes* which cover large parts of the body. They are kept moist, and are held in contact with the body by means of bags of sand. The current of 40 up to 100 milliamperes is applied at first for fifteen or twenty minutes once or twice a day and later for fifty or sixty minutes each time. After four or six weeks the treatment is suspended for six months and then the course is repeated. During the interval the patient generally loses 20 or 30 pounds, and during the second course loses still more, so that the weight is usually reduced on the whole from 60 to 88 pounds and the tendency to obesity seems to be permanently conquered; of course the electric treatment has to be aided by rational dieting. Carulla's patient had an electric apparatus installed in his home for the purpose. The galvano-faradic current was applied through two large metal electrodes covering most of the abdomen and held in place with elastic bands. The galvanic current was reduced after a time and the faradic increased and varied during the nine months of the courses and intervals. There has been no tendency to an increase in weight *during the three months* since the close of the courses although the patient does not restrict his diet.

84. **Thrombosis in Measles.**—Lutz states that in eight of a recent series of twenty-two fatal cases of measles extensive *thrombosis* was found at necropsy; the pulmonary arteries were particularly involved in six and in two also the cerebral arteries. In five cases the veins or right ventricle was also involved, in one the portal and mesenteric and in one the portal vein and sinuses in the brain. He has been able to find only eleven other cases on record of thrombosis in measles.

86. **Splenectomy in Pernicious Anemia and Other Blood Diseases.**—Eppinger concludes from his experience with splenectomy in ten cases that it is liable to have a curative action whenever there is destruction of the blood from any cause. Not only *in hemolytic jaundice but also in pernicious anemia,* benefit may be derived from splenectomy. He performed the operation in two cases of hemolytic jaundice; in two of pernicious anemia; in three of Banti's disease; in two of cirrhosis of the liver and in one of severe catarrhal jaundice threatening transition into acute yellow atrophy of the liver. The result in the hemolytic jaundice and pernicious anemia cases was surprisingly good; the urobilin in the stool dropped from 3.95 before to 0.62 a week later in one of the former cases and from 0.65 to mere traces in one of the pernicious anemia cases, while the reds increased from 1,160,000 to 4,900,000 *in six weeks and the weight by 8.8 pounds. The spleen* was not enlarged in either of the pernicious anemia cases. During the five and six months since the men have continued to gain in weight and feel perfectly well.

Eppinger's experimental research throws further light on the hemolytic properties of the spleen and his experience confirms the importance of the urobilin content of the stools as an index of the destruction of red corpuscles going on. The findings in some cases of valvular disease and cardiac insufficiency indicate that destruction of red corpuscles is an important factor in the syndrome presented here, as also in the syndrome of cirrhosis of the liver. Congestion and stasis of the blood favor destruction of the reds, and this is particularly evident with cirrhosis of the liver. The accompanying enlargement of the spleen incriminates the latter as the organ mainly involved in the hemolysis, and the improvement in his cases after splenectomy confirms this. Most of the patients in this liver *group had been sent* to the hospital with the diagnosis of gall-stone colic but the biliary passages were found normal. Congestion in the liver or spleen or both was probably responsible for the paroxysms of pain in these cases. Eppinger adds a warning that with an apparently harmless catarrhal jaundice connected with some gastro-intestinal intoxication, the spleen may become enlarged and the temperature may rise, but contrary to ordinary catarrhal jaundice, the stools are not clay-colored. There are large proportions of urobilin and urobilinogen in the urine, and the patients are liable to succumb suddenly with symptoms of acute yellow atrophy. He has recently lost two patients under these *circumstances.* In a more recent case the trouble had lasted for two months with headache and vomiting along with the jaundice. Two days after splenectomy the urine was free from urobilin, the jaundice promptly subsided, and the patient seemed restored to complete health. (See abstract 161 below.)

Deutsches Archiv für klinische Medizin, Leipsic

CXI, Nos. 3-4, pp. 209-416. Last indexed August 9, p. 440

88 Disease of the Auriculo-Ventricular Bundle. (Zwei Fälle von Reizleitungsstörungen.) E. Grabs.
89 Experiments on Kidney Fatigue. (Experimentelle Untersuchungen über die Ermüdbarkeit der Niere.) H. Mosenthal and C. Schlayer.
90 Multiple Symmetric Affections of the Tendon Sheaths and Bursae. (Ueber multiple symmetrische Erkrankungen der Sehnenscheiden und Schleimbeutel bes. die Hygromatosis rheumatica.) H. Günther.

91 Interdependence of the Ductless Glands in Disease. (Beiträge zur Diagnostik und Pathologie des polyglandulären Systems.) K. Csepai.
92 A Case of Polycythemia Rubra. C. Moewes.
93 Hypertrophy of the Heart. E. Edens.
94 Effect of Nitrites on the Coronary Vessels. (Ueber die Wirkung der Nitrite auf die Durchblutung des Herzens. Versuche am Herzen *in situ*.) K. Schloss.
95 Nitrogen Metabolism in Diabetes. (Ueber den Stoff- und Energie-Umsatz bei Diabetes.) F. G. Benedict and E. P. Joslin (Boston).
96 *Minimum Albumin Requirement. (Studien über Eiweissminimum.) M. Hindhede.

96. **Minimum Requirement of Albumin.**—Hindhede has been experimenting for seventeen years with a diet poor in nitrogen. He lived for a month on a diet of new potatoes, butter and strawberries. His children have grown up on a diet low in albumin, and are in the best of condition physically and mentally. He gives tables showing in detail the results of his experiments. Both he and a laboratory assistant lived for long periods on potatoes and oleomargarin, with a daily nitrogen excretion of 5 gm. He found that a nitrogen balance could be maintained on 20 gm. of digestible albumin to 3,000 calories. He agrees with Chittenden's well known low estimate as to the nitrogen requirement. He mentions Kumagawa's conclusion that the lower classes in Japan who live chiefly on rice are stronger than the upper classes who eat meat.

Deutsche medizinische Wochenschrift, Berlin

August 21, XXXIX, No. 34, pp. 1625-1664

97 Rachitis Not of Alimentary Origin. (Weitere Beiträge zur Rachitisfrage.) M. Kassowitz.
98 Physiology and Pathology of the Thymus. G. Meinhold.
99 Passage of Stains through the Intestines after Subcutaneous Injection. (Ueber den Transport subkutan injizierter Farbstofflösungen durch den Darmkanal.) W. v. Möllendorff.
100 Primary and Isolated Actinomycosis of the Salivary Glands. .G. Söderlund.
101 Technic for Determining Sugar Content of Small Amounts of Blood. (Eine Methode zur Bestimmung des Zuckergehaltes in kleinen Blutmengen.) A. Kowarsky.
·102 Research on Nature of Wassermann Reaction. (Die Eigenhemmung der Sera, ein Symptom der Lues.) J. Trinchese.
103 Traumatic Separation of the Epiphysis in Youths. (Die Epiphysitis tibiae dissecans traumatica adolescentium.) H. Ebbinghaus.
104 Technic for Paraffin Injections. (Zur Beseitigung der Emboliegefahr bei Paraffininjectionen.) E. Hartung.
105 Phenol and Camphor in Treatment of Venereal Ulcer. K. Rühl.
106 Necessity for Education of the Public in Regard to the Value of Diphtheria Antitoxin. E. Martini.

Deutsche Zeitschrift für Chirurgie, Leipsic

July, CXXIII, Nos. 3-4, pp. 221-416

107 *Injury of the Crucial Ligaments in the Knee-Joint. (Verletzungen der Ligamenta cruciata des Kniegelenks.) H. Goetjes.
108 Isolated Acute Osteomyelitis of the Pubis; Three Cases. Thomschke.
109 First Case of Successful Resection of Thoracic Esophagus for Cancer. F. Torek (New York).
110 Surgery of the Sternum; Four Cases. H. Harttung.
111 Diagnostic Importance of Determination of the Viscosity of the Blood in Surgical Work. D. Frischberg.
112 Combination Conservative Treatment of Surgical Tuberculosis. E. Menne.
113 *Essential Fragility of the Bones. (Zur Pathologie der idiopathischen Osteopsathyrose.) D. G. Zesas.
114 *Rational Pneumopexy in Surgery of the Thorax. G. Lerda.

107. **Injury of the Crucial Ligaments in the Knee-Joint.**—Goetjes adds seven cases to the twenty-three he has found on record and devotes sixty-nine pages to discussion of the conditions and operative repair when the crucial ligaments are ruptured or crushed. He refers to Robson's work in this line mentioned in The Journal, 1903, xl, p. 1539.

113. **Essential Fragility of the Bones.**—Zesas reports a case of idiopathic osteopsathyrosis in a woman of 57, constantly healthy until the last four years, when she noticed that her arms were weak and tired very easily. The shoulder and arm muscles were atrophied and one humerus and both ulnas showed signs of old fracture. The patient had no knowledge of the fractures but remembered a period two years before when she had had supposed rheumatic pains in her forearms. She died suddenly with symptoms of cerebral hemorrhage, but there was no necropsy.

114. **Rational Pneumopexy in Surgery of the Thorax.**—Lerda gives an illustrated description of the technic with which the lung is fastened to a broad opening in the skin and thus held artificially expanded. All agree that the lung bears suturing remarkably well, and the pneumopexy prevents threatening collapse and shriveling. The incision he recommends for the purpose is along the base of the pleural cavity, cutting but not resecting the ribs. The incision is carried from the sixth interspace, outside the nipple line, to the ninth interspace. The wall of the chest then gapes and affords ample access to the lung, diaphragm and mediastinum. He has had no clinical experience as yet with this technic.

Jahrbuch für Kinderheilkunde, Berlin

August, LXXVIII, No. 2, pp. 125-248

115 Frequency of Acute Inflammations in the Organs with Inherited Syphilis. (Bedeutung akut-entzündlicher Prozesse in den Organen bei kongenitaler Syphilis.) T. Haerle.
116 Effect of Atophan on Uric Acid Output in Children with the Exudative Diathesis. (Ueber Harnsäureausscheidung bei exudativen Kindern und ihre Beeinflussung durch Atophan.) H. Kern.
117 Eczema as an Expression of the Exudative Diathesis in Infants. (Ueber Eczema bei Säuglingen im Anschluss an die Lehre von Diathesen im Kindesalter.) A. Schkarin.
118 *Bad Effects of Carbohydrate Excess in Infant Feeding. (Beitrag zur Kenntnis des Mehlnährschadens.) A. Frank and K. Stolte.
119 *Raynaud's Disease as a Symptom of Inherited Syphilis. A. Bosanyi.
120 Case of Multiple Polypi of the Intestines. (Polyposis intestinalis seu Polyadenomatosis intestinalis.) Z. v. Bokay.
121 Increase of Trabeculae in the Spleen in Rachitis. (Ueber das Verhalten der Gitterfasern in der Rachitismilz.) A. Hayaski.

118. **Effect of Carbohydrate Excess in the Diet.**—Children fed on infant foods containing an excess of carbohydrates may seem well nourished and gain in weight for a long time. Finally, however, there is a loss in weight extending sometimes to extreme atrophy but masked frequently in the terminal stages by edema. Frank and Stolte believe that the harm is due not so much to the excess of carbohydrate as to the lack of other elements found in the normal food of the infant. Nitrogen and mineral salts are found in much greater quantity in milk than in the oat or wheat flours that form the basis of so many infant foods. Tables are given showing the percentages. Lipoids and fat are also lacking, but the fat deficit can be made up to some extent from the carbohydrate. The bodies of infants so fed contain more water than normal, and they are more susceptible to infection. Analyses of the livers from four cases are given, supporting these conclusions.

119. **Raynaud's Disease and Inherited Syphilis.**—Bosanyi describes two cases of congenital syphilis in which Raynaud's disease was present. It disappeared simultaneously with the symptoms of syphilis under luetic treatment, and in one case returned later with a recurrence of the manifestations of the syphilis. He cites similar cases from the literature and draws the conclusion that Raynaud's disease may safely be regarded as one of the manifestations of hereditary syphilis.

Medizinische Klinik, Berlin

August 24, IX, No. 34, pp. 1359-1400

122 *Chronic Juxtapyloric Gastric Ulcer. K. Faber.
123 *The Etiology of Arteriosclerosis and Its Importance for Treatment. M. Herz.
124 Sleep. (Ueber den Schlaf.) S. Laache.
125 Balneotherapy of Circulatory Disturbances. B. Lewinsohn.
126 *Differentiation of Organic and Functional High Blood-Pressure. (Zur Unterscheidung organisch bedingter und funktioneller Hypertonie.) R. Deussing.
127 Present Status of Treatment of Joint Tuberculosis. (Die moderne Behandlung der Gelenktuberkulose, speziell des Hüftgelenks, und ihre Emanzipation von Krankenhaus und Krankenlager.) W. Becker and E. Papendieck. Commenced in No. 33.
128 Seashore Health Resorts. (Veränderte Bewertung des deutschen See- und Küstenklimas.) F. Röchling.
129 Radish Juice in Treatment of Cholelithiasis. H. Engels.
130 Apparatus for Blood-Count. (Die Blutkörperzählung und Prozentbestimmung mit dem Cytax.) v. Putkowski.
131 Cultivation of the Syphilis Spirochete. (Züchtung der Spirochaeta pallida.) S. Szécsi.

122. **Chronic Peptic Ulcer Near the Pylorus.**—A similar article by Faber was summarized in The Journal, 1913, lx, p. 638. He here brings the history of some of his cases down to date, and emphasizes anew the diagnostic importance of intermittent stenosis of the pylorus. Spasmodic closure of the pylorus, with intervals of complete freedom from stenosis, is a sign of ulcer close to the pylorus, whether on the stomach or duodenum side or encroaching on both. According to his experience the hunger pains coming on not until two hours after eating are not pathognomonic for duodenal or gastric ulcer but may occur with various intestinal affections. He warns not to suggest by one's questions the character of the pains felt by the patient, and he insists on the necessity for objective findings before accepting a peptic ulcer. There must be evidence of gastric hypersecretion, especially 200 c.c. or more of acid stomach content after an Ewald test-breakfast, delay in evacuation of the stomach after the Bourget-Faber retention test-meal, and blood in stomach or stools, visible or occult. With a juxtapyloric peptic ulcer, operative treatment is necessary if a tendency to spasm of the pylorus persists, even in a mild form, after a thorough course of internal treatment of the ulcer. He found that in over 50 per cent. of all his chronic ulcer cases the ulcer was close to the pylorus, and that all disturbances vanished at one stroke after a gastro-enterostomy. The attacks of spasm of the pylorus may be so mild that they do not attract the patient's attention, but certainty can be obtained by the stomach-tube showing much retention at one time and little, if any, at others.

123. **Etiology of Arteriosclerosis.**—The main point which Herz emphasizes is the importance of grief and worry in the origin of arteriosclerosis, and the necessity for the physician's being a true friend of the family and adviser in order to better conditions in this respect. Far too little attention is paid as a rule to the nervous or psychic factors contributing to arteriosclerosis. Physicians are liable to scoff at the idea that one can die of a broken heart, but humanity at large and many general practitioners know that this does occur. Herz has recently had a case of the kind in his practice: A woman whom he knew to be perfectly healthy was actually consumed by grief and died of coronary sclerosis when her daughter went wrong. Women die from grief; men from worry over business. The effect of emotions on the vascular system is most serious when the vessels involved are connected with the brain, heart or kidneys. The physician who does not apply psychotherapy in treatment of arteriosclerosis neglects one of the most effectual means at his command. With cerebral-neurasthenic arteriosclerosis, iodin is the main reliance; with coronary trouble, theobromin and nitrites; but all these are of little if any use when the arteriosclerosis affects the cardiorenal vessels. Dieting is the reliance here.

Herz adds that even if alcohol and tobacco may be factors in the vascular trouble, yet any benefit from dropping them entirely is far outbalanced by the patient's longing for his accustomed stimulant. Everything should be done to make the patient placid, comfortable and cheery. An alcohol rub in the morning before rising is an important aid. If he dreads balneotherapy, do not insist on it or on anything that will annoy or distress him. Herz declares in conclusion that prophylaxis of arteriosclerosis should begin in childhood. Children are generally driven as being naturally lazy and ambitionless, but he insists that this is a mistake. Most people, even children, try to do too much; they work and worry too much. Children should be trained to recognize that they owe a duty to themselves, to seek fun as a recompense for fulfilling their ordinary duties. Joy does not come to us as sorrow does; we have to seek for it, and few understand this. We physicians, for example, are far too much slaves to duty, we overwork and ruin ourselves. (. . . *viel zu sehr Pflichtmenschen, wir überarbeiten und ruiniren uns.*)

126. **Differentiation of Organic and Functional High Blood-Pressure.**—Deussing eliminates all the functional factors possible by taking the blood-pressure in the morning before the patient gets up and while he is still fasting. This not only excludes psychic and physical factors, but it also excludes any possible mechanical influencing of the heart by the full stomach. Organically high blood-pressure is the same under these conditions as ot other times, but a previously functional high blood-pressure will be found practically normal.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

August, XXXVIII, No. 2, pp. 125-246

132 High Straight Position in the Uterus. (Der hohe Geradstand.) O. Pankow.
133 Desirability of Uniform Terminology in Describing Mechanism of Birth. (Kopfform und Geburtsmechanismus.) A. Müller.
134 *Expectant Treatment of Eclampsia. (Weitere Erfahrungen mit der abwartenden Eklampsiebehandlung.) Lichtenstein.
135 *Laparotomy for Abortion and Removal of Tubes. (Schwangerschaftsunterbrechung und Sterilisation in einer Sitzung auf abdominalem Wege.) H. Sellheim.
136 Operative Cure of Immense Basal Spheno-Orbital Meningocele. H. Kondring.
137 Improved Technic for Embedding in Paraffin Histologic Sections of Uterus and Ovaries. F. A. Loofs.
138 Ancient Votive Offerings Depicting Female Genital Organs. (Antike Votivgaben die weiblichen Genitalorgane darstellend.) K. Sudhoff.

134. **Expectant Treatment of Eclampsia.** — Lichtenstein believes that the expectant treatment by bloodletting and narcotics is to be preferred to operative interference in eclampsia. He gives his statistics for ninety-four cases, with the histories in twenty-four of the most severe cases. He had five deaths, a mortality of 5.3 per cent. None of the deaths could be attributed to the form of treatment. The infant mortality was 37.3 per cent. as against 38.8 per cent. for active treatment in previous years. Psychoses occurred in 2.1 per cent. as against 6.75 per cent. for the active treatment. In 54 per cent. of the cases the attacks ceased after a single venesection; 42 per cent. of the women with antepartum attacks recovered before labor came on. Seventy-four successive cases were treated without a death. Naturally, with either method of treatment, the results are the more favorable the earlier it is begun. He recommends the lateral position, as respiration is freer and there is less pressure on the abdominal vessels and ureters than in the dorsal position.

135. **Laparotomy for Interruption of Pregnancy and Sterilization.**—In cases in which it is necessary to interrupt pregnancy and sterilization is indicated, Sellheim opens the abdomen, incises the uterine wall, empties the uterus, closes the uterine wound and excises the tubes. He has operated in ten cases in this way and believes it is more favorable to the patient than emptying the uterus by the vaginal route and performing a salpingectomy afterward, as the latter method involves two anesthetizations.

Monatsschrift für Kinderheilkunde, Berlin

August, XII, No. 4, pp. 151-228

139 Unmodified Cow's Milk Preferable to Casein-Enriched Milk. (Vergleichende Untersuchungen über die Ausnützung von Vollmilch und kaseinfettangereicherter Kuhmilch.) A. Frank.
140 *Development of Artificially Fed Infants. (Ueber die Entwicklung junger Säuglinge bei künstlicher Ernährung.) P. Phillippson.
141 Case of Pentosuria in Early Childhood. H. Aron.
142 *Optimum Dosage of Calcium Salts in Spasmophilia. (Untersuchungen über die therapeutisch wirksame Dosierung von Kalksalzen mit bes. Berücksichtigung der Spasmophilie.) K. Blühdorn.
143 *Pulmonary Tuberculosis in Infants. (Zur Klinik und Pathologie der Lungentuberkulose beim Säugling.) R. Lederer.
144 Fat Content of the Liver in Atrophic Infants and in Inanition. A. Hayashi.

September, No. 5, pp. 229-268

145 *Calcium Lactate in the Digestive Disorders of Infancy. (Die Anwendung von Calcium lacticum bei Ernährungsstörungen von Säuglingen.) E. Aschenheim.
146 *Surgical Scarlet Fever. (Zur Klinik des Wundscharlachs.) H. Hahn.
147 Whey in Infant Feeding. (Erfahrungen mit Molkensuppe bei Säuglingen.) F. Steinitz and R. Weigert.
148 *Bronchotetany, Asthma and Asthmatic Bronchitis in Infancy. H. Rietschel.

140. **Development of Artificially Fed Infants.**—Phillippson gives the weight curves of twenty-three infants fed artificially for periods of more than two weeks during 1912. With the exception of two who have died, all the children made satis-

factory gains in weight and none suffered from severe rickets. As compared with breast-fed infants, however, the curves do not show as great gains. They were fed on a simple dilution of sweetened cow's milk. In some cases beet sugar was used and in others Soxhlet's sugar with no appreciable difference in results. Phillippson prefers this simple nourishment to albumin-milk, malt, buttermilk, or any of the more complicated formulas frequently used.

142. **Dosage of Calcium Salts in Spasmophilia.**—Blühdorn here brings down to date the report of his experiences with calcium chlorid, previously summarized in The Journal, July 19, 1913, p. 228. He has applied this treatment now in twenty-six cases. The little patients were all between 4 and 12 months old except one of 2 years and one of 4½. The last mentioned child had repeated attacks of spasm of the glottis and they did not return after ten tablespoonfuls of the 10 per cent. solution had been taken within twenty-four hours. The dosage advocated was decided on after study of the effect of tentative dosage on the electric irritability of the median nerve tested between 9 and 10 a. m. and 6 and 7 p. m. He reiterates that large doses are necessary the first day, 2 or 3 gm. of the chlorid or bromid at a dose, up to 4 or 8 gm. in the course of twenty-four hours. This will stop convulsions and other symptoms of the spasmophilia but does not have much effect on the electric excitability of the muscles. The same dosage, he states, should be given where calcium salts are used in other diseases, such as constitutional eczema, asthma or tendency to hemorrhage. The effect is soon manifest with this dosage but it disappears quickly. It is really a symptomatic improvement which ceases as soon as the medication is discontinued. No change in diet need be made. The comparative efficacy of the various salts depends partly on their calcium content and partly on the ease with which they are absorbed.

143. **Pulmonary Tuberculosis in Infants.**—Lederer describes five fatal cases of pulmonary tuberculosis in infants and three in which the children recovered. In all the fatal cases there was miliary tuberculosis of various internal organs. He believes that the infection was of air-borne origin, the primary focus being in the lung with involvement of neighboring lymph-nodes. The prognosis in early infancy is extremely unfavorable, but he gives the three cases of recovery to show that it is not hopeless. The difference in the outcome is due partly to the severity of the infection, partly to the environment of the child as to light, air, food, etc., and partly to predisposition, as he believes that there is such a thing as congenital tuberculosis.

145. **Calcium Lactate in Digestive Disorders of Infancy.**—Aschenheim is convinced that the use of the so-called albumin-milk is a tremendous advance in infant feeding. It is, however, difficult to make and expensive, and he has been looking for a cheaper substitute. In many cases of mild or moderate dyspepsia he has found calcium lactate answer much the same purpose. He feeds a mixture of milk and water or milk and oatmeal and water, enriched on the second day with a little cream. In severe cases no sugar is used; in milder cases Soxhlet's sugar. In addition he gives from 7 to 10 gm. calcium lactate per day, that is, 70 to 100 c.c. of a 10 per cent. solution. He regards calcium lactate as a valuable aid in the management of dyspeptic conditions in infants, basing his conclusions on its results in sixty-one cases.

146. **Surgical Scarlet Fever.**—Hahn gives histories of seventeen cases of scarlet fever occurring in his surgical clinic after wounds or operations. The most of them followed burns or operations for empyema. The eruption began in most cases around the wound and the typical picture of scarlet fever then developed. It was, however, milder than ordinary scarlet fever. In only one case was there any ear affection or swelling of the lymph-nodes. There was no nephritis or heart affection in any case. He attributes this to the fact that the infection was probably with an attenuated virus.

148. **Bronchotetany.**—Lederer described in the *Ztschr. f. Kinderhlk.*, 1913, vii, 1 (abstract in The Journal, 1913, lx, 1931), a condition which he called bronchotetany. The most characteristic feature of it is the extreme dyspnea caused by spasm of the bronchial musculature, preventing the access of air. He gave the differential diagnosis from pneumonia and asthma and described six cases.

Rietschel here reports a case of almost a month's duration, ending in recovery. He thinks the differential diagnosis from true asthma is more difficult than would appear from Lederer's article, and emphasizes the importance of making the distinction, as the treatment for spasmophilia is of a different nature and far more hopeful than that for true asthma.

Münchener medizinische Wochenschrift

August 26, LX, No. 34, pp. 1865-1920

149 *The Pancreas Secretion during Disturbance in Stomach Secretion. (Studien über die Pankreassekretion bei Sekretionsstörungen des Magens.) E. Schlagintweit and W. Stepp.
150 Diphtheria Antitoxin by Intravenous Injection. (Intravenöse Anwendung des Diphtherie-Heilserums.) W. Beyer.
151 *Biology of the Syphilis Spirochete. (Beobachtungen an lebenden Spirochäten.) E. Meirowsky.
152 Antitryptic Action of the Blood Serum. H. Kämmerer.
153 *Treatment of Lymphosarcoma. E. Fabian.
154 Frequent Deformity in Lower Thoracic Vertebrae. (Häufige Anomalie der unteren Brustwirbelsäule.) W. Gundermann.
155 No Antilactose Ferments in the Serum of Pregnant Women. (Ueber Abwehrfermente im Blutserum Schwangerer und Wöchnerinnen, die auf Milchzucker eingestellt sind.) E. Abderhalden and A. Fodor.
156 *The Testimony of Persons Injured in Accidents. (Zur Psychologie der Aussagen Unfallverletzter.) R. Foerster.
157 Blocking the Brachial Plexus in Treatment of Neuralgia. (Beeinflussung der Neuralgie des Plexus brachialis durch Kuhlenkampfsche Anästhesie.) M. Többen.
158 Technic for Determination of Diphtheria Bacilli. (Ueber das Nachweisverfahren der Diphtheriebazillen nach v. Drigalski und Bierast.) E. Voelckel.

149. **Pancreas Secretion Dependent on Stomach Secretion.**—The experiments were made on a large dog whose gall-bladder had been connected with the small intestine after severing the common bile duct. A tube was worn in the duodenum through which gastric juice was injected. Injection of a small amount of normal or hyperacid gastric juice was followed by profuse secretion of pancreatic juice. On the other hand, injection of the stomach secretion from patients with gastric cancer or simple achylia was followed by little if any secretion in the pancreas. The latter is evidently the result of several factors. When the most important factor—the chemical stimulus from the hydrochloric acid—drops out, the inadequacy of the remaining factors is liable to lead soon to severe impairment of pancreas functioning.

151. **Vital Staining of Spirochetes.**—Meirowsky describes the stain with which he has been able to color living spirochetes without apparently impairing their vitality. He was surprised to find with this technic that the *Spirocheta pallida* sprouts one or more buds and that new spirochetes spring from these buds. The buds can be seen dividing like the nucleus of a true cell into two, four or more parts, and the young spirochetes develop from these fragments, regardless of whether the buds are still connected with the body of the mother spirochete or whether they have been detached from it. If further research shows that the spirochete belongs to the protozoa, the propagation is here of an asexual type. There is of course a possibility that the spirochete may prove to be a plant structure which proliferates by production of spores. The budding has interesting features as he shows with an illustration of over seventy-four different types. The vital staining seems to be possible with any methyl violet. The budding is visible also in the ultramicroscope and with the spirochetes of balanitis and stomatitis.

153. **Lymphosarcoma.**—Fabian presents evidence from his own experience and from the literature that a lymphosarcoma limited to its site and the regional lymph-nodes may sometimes be cured by a radical operation. Occasionally an inoperable or generalized lymphosarcoma may become arrested and even retrogress, passing into a latent stage, but to date no instance is known of an actual complete cure. These retrogressions have followed an intercurrent infectious disease, partial operations, radiotherapy or injection of Coley's fluid; they

have thus been observed after the most varied measures or without any medical measures. Fabian reports two cases: In the first an inoperable lymphosarcoma of the jaw and cheek retrogressed under arsenic and the Roentgen rays, and examination thirteen months after the course of treatment showed that the retrogression then realized had been permanent, nothing being left of the growth, only extreme atrophy of the tissues in its place. The patient, a woman of 56, had gained 10 pounds in weight. In the second case a robust man of 65 had the lymphosarcoma develop on the nose in a few weeks. The growth was excised and there has been no sign of recurrence during the two years and three months since, although the depths of the tumor had not been reached. Such cases teach the necessity for prompt and energetic treatment as giving some hope, although the prognosis should always be extremely guarded.

156. **Psychology of the Testimony of Persons Injured in Accidents.**—Foerster declares that the testimony of persons who have passed through an accident is liable to be incorrect and misleading even at the best. At the moment of the injury, and on account of the injury their perception of what is going on may be impaired. What was noticed may be forgotten later, while the gaps in the memory are filled up by vague memories of what occurred, by reasoning backward from the injuries observed, by unconscious assimilation of the descriptions of other persons, and by analogous experiences in other circumstances. In the elderly and those with clouded minds, the actual occurrences may be incorrectly interpreted. The fright alters the conception of time: when there is pain, the interval seems longer; or the fright may obliterate the interval between the events.

Petersburger medizinische Zeitschrift

August 28, XXXVIII, No. 16, pp. 189-201

159 Fracture of the Knee. O. Brehm.
160 The Refractometer in Physiologic-Chemical Research. (Anwendung des Abbeschen Refraktometers bei chemisch-physiologischen Untersuchungen.) S. Serkowski and W. Kraszewski.

Therapie der Gegenwart, Berlin

September, LIV, No. 9, pp. 385-432

161 *Splenectomy in Treatment of Pernicious Anemia. G. Klemperer and H. Hirschfeld.
162 *Local Application of Tincture of Iodin to Eradicate Diphtheria Bacilli. (Systematische Jodpinselung des Rachens zur Beseitigung von Diphtheriebacillen.) F. W. Strauch.
163 Refrain from Endonasal Operations Unless Strictly Necessary. B. Goldschmidt.

161. **Splenectomy in Treatment of Pernicious Anemia.**—Klemperer and Hirschfeld report two cases of pernicious anemia in which they removed the spleen and marked improvement followed. This brings to six the total number of cases on record in which splenectomy has been done in treatment of pernicious anemia. They based the procedure on the fact that a previous patient with Banti's disease, severe anemia with splenomegaly, developed pronounced polycythemia in a year and a half after splenectomy. The reds then numbered seven and eight millions with hemoglobin over 120 per cent. There are also a number of other cases on record in which polycythemia followed splenectomy done for rupture of the spleen. Eppinger's report of two cases is summarized above, abstract 86. He removed the spleen on the ground that in hemolytic anemia there seems to be a pathologic excessive destruction of the reds in the spleen. As splenectomy has given good results in hemolytic jaundice, he applied the same measure in pernicious anemia and his results were much more favorable than those reported in the *present article*.

It is possible that the splenectomy acts better when the pernicious anemia is of recent date. In the two cases here reported the blood picture changed at once showing an essential influence on the regeneration of the bone marrow. No such powerful reaction on the part of the bone marrow has ever been obtained by any other measure applied in treatment of pernicious anemia. The hope that the splenectomy would stimulate the new production of red blood corpuscles was fully realized, although the blood still has certain features of pernicious anemia, especially the presence of numerous megalocytes. The most interesting point in the case-histories is the immediate flooding of the blood after the splenectomy with nucleated reds, a blood crisis of an intensity never observed before. Time alone will show whether the benefit is durable. The greatest improvement both subjectively and objectively was in the case of a tuberculous woman of 36; the hemoglobin content rose from 30 to 55 per cent. in one month and to 80 per cent. by the second month.

162. **Iodin in Prophylaxis of Diphtheria.**—Strauch applies as a routine measure tincture of iodin to paint the tonsils when diphtheria bacilli are still found in the throat a week after the close of an attack of diphtheria. In sixteen out of fifty cases after one or two applications of the iodin on a cotton pledget no further diphtheria bacilli could be detected; in twenty others none could be found after three applications; in two cases four applications were necessary, and in four other cases, including three with diphtheria of both nose and throat, the bacilli could still be cultivated from the tonsils. He commends this systematic iodin treatment as a useful means to control the further spread of the infection, even though it is not invariably successful. The most striking results were observed in some cases in which chronic bacilli carriers were freed from the bacilli in a few days under the iodin. No harm or by-effects were ever noticed, except the disagreeable but transient taste of the iodin in the mouth.

Wiener klinische Wochenschrift, Vienna

August 21, XXVI, No. 34, pp. 1353-1380

164 *Changes in Syphilis Virus. (Aktivitätsveränderungen und entsprechende Aviditätsschwankungen des luetischen Virus gegenüber antisyphilitischen Mitteln.) W. Buettner.
165 Serodiagnosis of Cancer, Nephritis, etc. (Serologische Untersuchungen mittels des Dialysierverfahrens nach Abderhalden.) F. Deutsch and R. Köhler.

August 28, No. 35, pp. 1381-1412

166 *Acute Necrosis of the Pancreas. J. Gobiet.
167 *Prophylaxis of Diphtheria. (Zur Frage der rationellen Erweiterung unserer heutigen Diphtheriebekämpfung.) K. Delyannis.
168 Roentgenoscopy of the Pericardium. (Zum radiologischen Verhalten des Perikards.) E. v. Czyhlarz.
169 Suppuration in Undulant (Malta) Fever Simulating Pott's Disease. (Zwei Fälle von Eiterung bei Maltafieber, welche Senkungsabszesse im Gefolge von Malum Potti vortäuschten.) G. Trotta.
170 *Dietetic Treatment of Urticaria. H. Salomon.

164. **Fluctuations in Receptivity of the Syphilis Spirochetes.**—Buettner concludes from his extensive research that the activity of the spirochetes and the avidity with which they take up the drugs used in treatment of the syphilis run a parallel course. In the early stages the spirochetes are most active and at the same time most susceptible to drugs. Among the arguments in favor of this view are that drugs are most effectual in the florid stage; also the fact that mild syphilis cannot be cured with correspondingly mild measures, while general paresis is liable to follow the mild early forms; also that the drugs are more effectual in the early than in the later stages; that the cure is not proportional to the amount of the drugs used, and, lastly, the fact that certain germs in other diseases display this same propensity to become less susceptible to drugs in time. Among other conclusions drawn from this research is the necessity for arousing the avidity, stimulating the appetite, of the spirochetes for the drugs. He suggests for this giving small doses of mercury for a few days to activate the virus before commencing the actual therapeutic course. Or one small dose of salvarsan might be given first, before the intravenous therapeutic dose. Activating measures in the form of sweating procedures, iodid, thiosinamin, etc., have long been advocated by some, and he thinks they are logical. He is inclined to regard the Herxheimer reaction as merely the result of activation of the virus.

166. **Acute Necrosis of the Pancreas.**—Gobiet reports seven cases in less than three years in which he has operated on the diagnosis of acute necrosis of the pancreas. Four of the patients had gall-stones and one inflammation of the gallbladder without stones. Five of the patients were inclined to

obesity, but in the two most severe cases the patients were quite thin. In only one case could syphilis be incriminated. The clinical picture is that of sudden and violent intoxication, in the severest cases speedily fatal. The prognosis depends on the amount of toxins produced which in turn depends on the local extent of the process. The diagnosis is based on the symptoms of toxic action accompanied with severe shock and peculiar pains in the epigastrium, more intense than gallstone colic, and the frequent distention of the transverse colon. Operation without delay is imperative—incising and tamponing the pancreas. Even if the biliary passages are diseased, it is not necessary to open and drain them unless there is severe suppuration. Only in mild cases of necrosis of the pancreas is it advisable to operate on the biliary apparatus at the same time. As a rule, it is better to remove the gallstones at a second operation, to prevent return of the pancreas affection.

167. Prophylaxis of Diphtheria.—Delyannis expatiates on the necessity for searching out and isolating the carriers of diphtheria bacilli as the only means to stamp out epidemics. He gives a number of concrete examples to show the small numbers of diphtheria-bacilli carriers and the comparatively short periods during which they require isolation. This renders prophylaxis along these lines comparatively simple and easy. He cites Wolff's experience with endemic diphtheria in two villages, affecting 20 per cent. of the total population and resisting all attempts to stamp out the disease until the bacilli carriers were sought out and isolated when at one stroke the epidemic was conquered and no further cases developed. although all other prophylactic measures were dropped. Delyannis thinks that the same system of prophylaxis should be enforced for diphtheria as for typhoid.

170. Dietetic Treatment of Urticaria.—Salomon writes from von Noorden's clinic at Vienna, to call attention to the striking results he has obtained in treatment of rebellious urticaria by having the patients drop all albumin from their diet for two weeks. In his experience the urticaria did not return after this dietetic restriction for two weeks, although the patients afterward gradually resumed milk, eggs, cheese and meat, still keeping the albumin ration, however, rather below the usual amount. The diet he permitted consisted only of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar, and about 200 gm. of bread made of coarse flour.

Zentralblatt für Chirurgie, Leipsic

August 30, XL, No. 35, pp. 1361-1392

171 Technic for Local Anesthesia. (Zur Frage der Lokalanästhesie mit Novokain-Suprarenin-Kaliumsulfat.) A. Hoffmann.
172 Frost Bite without Freezing Weather. (Ueber Frostschaden ohne Frostwetter.) A. Köhler.
173 Exclusion of the Appendix. (Ausschaltung des Wurmfortsatzes.) E. Sonnenburg.

Zentralblatt für Gynäkologie, Leipsic

August 30, XXXVII, No. 35, pp. 1285-1316

174 Institutional Care for Obstetric Cases. (Die Vereinigung zur Förderung der Wöchnerinnenasyle und ihrer sozialhygienischen Bestrebungen.) Brennecke.
175 Advantages of Seizing the Fetal Head as One Grasps a Ball in a Bowling Alley. (Ueber den Kegelkugelhandgriff.) Schwarzwäller.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 26, XXXIV, No. 102, pp. 1063-1070

176 Advantages of Salt-Poor Diet in Diabetes Insipidus. E. Boari.

August 28, No. 103, pp. 1071-1078

177 Superiority of Guignaut's Test for Bile Pigments in Stools. (Sull' applicazione dell'acido cloridrico con percloruro di ferro per la ricerca delle biline e dei pigmenti biliari nelle fecce.) G. Jovine.

Policlinico, Rome

August 31, XX, No. 35, pp. 1249-1284

178 Serodiagnosis in Exophthalmic Goiter. (Ricerche sulla deviazione del complemento nel morbo di Flajani-Basedow.) I. G. Roseo.
179 Iodin Treatment of Erysipelas. (Sulla cura locale della erisipela con la soluzione alcoolica di tintura di iodio.) F. Parisi.

Riforma Medica, Naples

August 16, XXIX, No. 33, pp. 897-924

180 *Cancer of the Testicle. D. Maragliano. Concluded in No. 34.
181 *Technic for Resection of Colon. (Mobilizzazione basale del meso-colon pelvico per ristabilire la diretta continuità intestinale nelle resezzioni del colon iliaco e porzione terminale del colon discendente.) G. Vignolo.
182 *Thermocautery to Precede Filling of Bone Cavities. (Se la cauterizzazione di una perdita di sostanza ossea preguidichi l'impiombatura.) L. Fioravanti.
183 *Traumatic Suppuration in Liver of Small Boy. (Ascesso traumatico del fegato.) F. D'Agostino.

August 23, No. 34, pp. 925-952

184 Apparatus for Therapeutic Pneumothorax. (Un nuovo apparecchio pel pneumotorace artificiale.) G. Breccia.
185 Marmorek's Serum in Surgical Tuberculosis. C. Pavesio. Commenced in No. 33.

180. Cancer of the Testicle.—Maragliano urges the importance of removing the lymph-nodes along the abdominal aorta, as they connect directly with those linked with the testicle, as an important aid in warding off recurrence. He reports a case.

181. Mobilization of the Pelvic Mesocolon as Aid in Entero-Anastomosis.—Vignolo calls attention to the advantages of the technic he applied in a recent case and studied further on the cadaver. In resecting a cancer in the colon near the sigmoid flexure, a wide gap was left between the stumps and they could not be brought together until he cut across part of the mesentery of the lower stump at its base. This freed the lower stump so that it could be brought up easily and joined with the other. In two weeks the bowels were functioning practically normally and recovery was soon complete.

182. The Thermo-Cautery Before Plugging Cavities in Bones.—Fioravanti reports only two cases but the results were so unmistakably excellent, as also on rabbits and dogs, that he advises as a routine measure the use of the actual cautery as a preliminary to Mosetig's filling. It aids in hemostasis while it dries out the cavity and helps to sterilize it.

183. Traumatic Abscess in the Liver.—D'Agostini's patient was a boy of nearly 6, who complained of pain in the right side at the point where he had been punched in the side by one of his mates eight days before. He kept on at school for ten days when chills and remittent fever developed and a small tender bunch could be palpated in the side, gradually increasing to the size of an orange. There was no jaundice nor diarrhea nor vomiting. The large fluctuating tumor was opened under ether and smooth recovery followed. The pus had the odor characteristic of colon-bacillus pus. D'Agostini was able to find in the literature only one other case of traumatic liver abscess; this was in a robust man who slept in an iron-framed cot, the hard edge of which traumatized his right side.

Medizinskoe Obozrienie, Moscow

LXXIX, No. 10, pp. 815-902

186 *Diagnosis of Gaseous Subphrenic Abscess. S. A. Grossman.
187 Changes in the Liver in a Case of Splenomegaly. (Ob izmieneniak petcheni v odnom slutchaie splenomegalii.) A. Kriukov.
188 Occupational Diseases; Four Cases of Industrial Carbon Bisulphid Poisoning of the Nervous System. (O gruppovom otravelienie nervnoi systemi sierouglerodom.) V. K. Xorosko.
189 Antibodies in the Serum during the First Stage of Syphilis. (Nakopleni spetchifitscheskik protivotiel v sivorotkie bolnik v pervitchnom periodie.) A. V. Likatchev.
190 Multiple Neurofibromata in Two Adult Brothers. (Bollezni Recklinghausen'a.) N. N. Pismenni.

186. Differential Diagnosis of Gaseous Subphrenic Abscess.—Grossman gives four colored plates to map out the region and aid in the differentiation of suppuration below the diaphragm. His patients were a man of 36 and two young women. One woman recovered but the other patients died from heart failure or general weakness a few weeks after the evacuation of the abscess.

Hospitalstidende, Copenhagen

August 27, LVI, No. 35, pp. 1005-1028

191 Carbon Dioxid Snow in Treatment of Skin Diseases. (Om Behandling af Hudsygdomme med Kulsyresne.) P. Haslund.

Ugeskrift for Læger, Copenhagen

August 28, LXXV, No. 35, pp. 1435-1456

192 Hysteria. (Hysteri før og nu.) C. Heyerdahl. Commenced in No. 34.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXI, No. 15 Chicago, Illinois October 11, 1913

GASTROSCOPY *

HENRY H. JANEWAY, M.D.

NEW YORK

It is unnecessary, in a paper attempting to enlist interest in gastroscopy, to emphasize the frequency of cancer of the stomach and how rarely this disease is diagnosed in an early stage. Only one question presents itself for discussion. Is gastroscopy an efficient and practical method of viewing the interior of the stomach? By an efficient method is meant one which permits the details of the mucous membrane of a sufficient portion of the stomach to be seen clearly. By a practical method is meant one which is not dangerous and does not entail too much inconvenience or suffering on the part of the patient, and, perhaps, one which furnishes more information than other existing methods of objective examination.

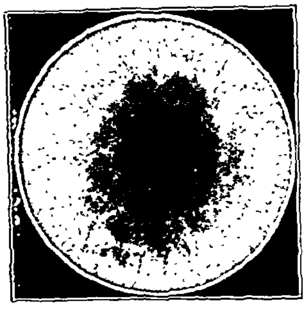


Fig. 1.—Cardiac sphincter—direct view.

No one, for instance, would question the value of inspecting the interior of the stomach or the obligation which rested on the physician of insisting that patients with new gastric symptoms should submit to an examination of this character if he believed that the procedure was really efficient and practical in the sense just defined.

It is the object of this paper to show to the members of this Section how much of the interior of the stomach can be seen, how clearly it can be seen, and with what little inconvenience in the normally formed person.

Although I believe that anyone who witnesses this demonstration would be forced to admit that on this patient, at least, gastroscopy is an efficient and practical method of viewing the interior of the stomach, the fact nevertheless remains that for more than thirty years numerous attempts have been made to improve the technic of gastroscopy without gaining for this method of examination even a small part of that recognition which cystoscopy has acquired. This consideration naturally reflects some doubt on any claim to improvement which would place gastroscopy on a new plane of efficiency.

Figure 1 represents the cardiac sphincter. Figures 2 and 3 represent the entrance to the pyloric region of the stomach at the place of transition from the vertical portion of the stomach to the horizontal portion. Figure 4 represents a view in the opposite direction toward the fundus or cardiac region. It illustrates the anterior and posterior walls of the stomach separated by a central cleft-like cavity. Figures 2, 3 and 4 are seen through an indirect telescope viewing the mucous membrane at right angles to the direction of the instrument. Figure 5 represents the stomach in the direction of the greater curvature viewed directly. It must be quite evident to anyone that, if views of such a degree of clearness can be obtained within the stomach, the method of examination is not only of positive, but also of negative diagnostic value. The character of these views depends alone on efficient illumination. I have tried four other types of telescopes, but have been unable to obtain the satisfactory view of the interior of the stomach here demonstrated until I had constructed the lamp and lens system of the instrument used in this demonstration. The lamp is as large as the caliber of the sheath of the instrument and furnishes sufficient light to illuminate the whole of the distended stomach.

The use of so large a lamp is made possible by the device for pressing it to one side after it has been introduced into the stomach. I have compared its degree of illumination and the views possible by it with those obtained by the indirect type of instruments made on the plan of the indirect cystoscopes and am convinced that the latter type of instrument will not enable one to see distinctly within the stomach. The lens system does not afford a view through a wide angle, but enables the eye to see clearly up to within 4 inches from its surface.

When suspicious appearances are found the direct view telescope may be focused on the area, as illustrated in Figure 5, and a piece removed for microscopic examination. Up to the present I have made a positive diagnosis by one or the other of these methods in twenty cases of cancer of the stomach. The roentgenoscopic examination was negative in two of these cases. The field of usefulness of the Roentgen examination of the stomach and of gastroscopy are not quite the same. But the two methods complete each other well. Roentgenoscopy furnishes accurate information regarding the condition of the pylorus. This is, of course, the most important region of the stomach in which the largest number of ulcers and carcinomas originate. On the other hand, gastroscopy furnishes exact information, both positive and negative, about the condition of the vertical portion of the stomach. This includes by far the largest portion of the stomach and the region of the lesser curvature, but not the region, perhaps, in which the majority of ulcers and cancers originate. It does, however, include a region occupied by a large proportion of cancers and those which

---

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Department of Experimental Surgery of New York University and Bellevue Hospital Medical College.

are particularly difficult to recognize clinically or by any other method of objective examination, even including Roentgen cinematography. One can, therefore, see inside the stomach with a degree of clearness which completes in a needed manner other existing objective methods of examination. It is possible, moreover, in the normally formed person, to make the examination without undue discomfort and with safety.

I am convinced that, if proper gentleness and carefulness of technic are exercised, it is possible to diagnose cancer of the cardia simply with the aid of cocainization of the pharynx and without causing pain or an amount of discomfort to which a normal person would object.

Some discomfort, except in rare persons, is experienced and the nervous apprehension of the average patient at the thought of having a rigid instrument inserted into the stomach is such that I have concluded that the examination in a large percentage of patients is more satisfactorily conducted under a general anesthetic. For this purpose we have in intratracheal anesthesia, a new method which makes possible in gastroscopy that which previously has not been possible. For gastroscopy it is superior to intravenous or rectal anesthesia because it prevents any obstruction to the elimination of the ether which may be caused by pressure of the gastroscope on the trachea. It is possible, moreover, to conduct the whole examination after the administration of a small amount of ether under nitrous oxid and oxygen by a method perfected for this purpose and about to be described. I believe that the possibility of conducting gastroscopy under nitrous oxid and oxygen anesthesia introduces a new consideration in gastroscopy which, if it proves uniformly successful, will remove the last objection to the routine use of this method of examination on the ground of discomfort to the patient. Certainly, if it is possible to examine the interior of the stomach in a patient anesthetized with an anesthetic associated with so few unpleasant after-effects as those which follow nitrous oxid anesthesia, there should be no objection to the routine application of a gastroscopic examination when what it reveals may mean so much to the patient.

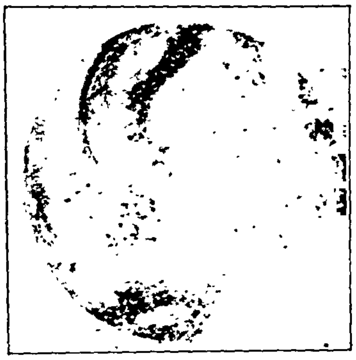


Fig. 2.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—indirect view.

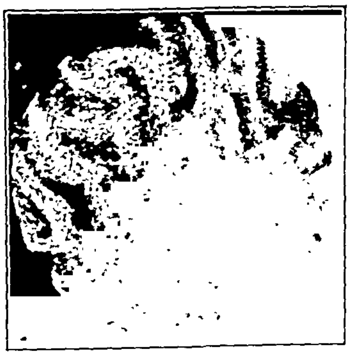


Fig. 3.—Entrance to the pyloric region of the stomach at the place of transition from the vertical to the horizontal portion—indirect view.

As regards the safety of gastroscopy, are there any dangers connected with passing a rigid tube into the stomach? Dr. Chevalier Jackson long ago proved that the procedure is devoid of danger; and how can it be otherwise if the eye of the observer is always kept on the distal end of the instrument? If the end of an instrument which is inserted into the esophagus and then into the stomach is never allowed to progress except where the folds of mucous membrane fall away before it by air distention in its passage down the esophagus, how can any injurious trauma be caused? Except in the case of one patient at the very beginning of the work when my technic was faulty, I have never had any unpleasant consequences.

The late diagnosis of gastric cancer, particularly of cardiac cancer, has long been a blot on the reputation of medicine. I believe that we now have two methods, Roentgen cinematography and gastroscopy, which do not cover the same field, but which complement each other, and by which it is possible to make the diagnosis of carcinoma of the stomach when the presence of this disease is suspected. It is no longer a question of inability to make the diagnosis, but, in the words of Dr. Jackson, of "looking and seeing."

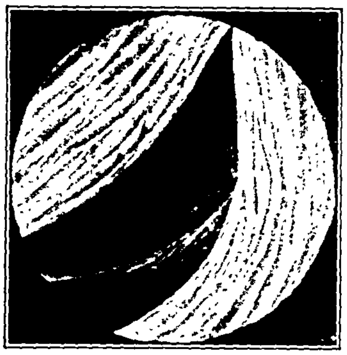


Fig. 4.—View toward the fundus or cardiac region—indirect view.

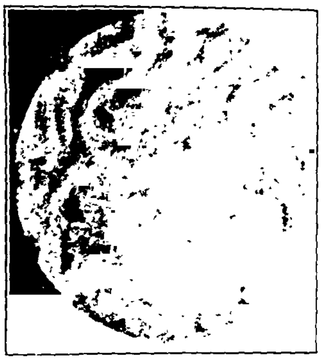


Fig. 5.—The stomach in the direction of the greater curvature, viewed directly.

It may perhaps be a question of the patient's complaining of symptoms early enough, but if gastroscopy and roentgenoscopy are made a routine in cases in which the diagnosis of cancer is among the possibilities, a large proportion of carcinomas of the stomach will be found in a stage in which it is possible to do something for them. Of not less importance, perhaps, is the consideration that we shall be discharging an obligation which we owe these patients.

It is surely desirable to be in possession of the information afforded by these two methods of examination before resorting to exploratory incision. If this rule is followed the exploratory operation may prove unnecessary, or, if this is indicated, the surgeon will be in a better position to proceed with a radical operation.

104 East Fortieth Street.

ONE HUNDRED CASES OF WATER-TRAP STOMACH *

G. REESE SATTERLEE, M.D.
AND
LEON THEODORE LeWALD, M.D.
NEW YORK

In the examination of a patient with an apparently severe digestive condition, the first essential point is to determine which part of the digestive tract is particularly to blame for the symptoms. This can be accurately ascertained only by means of a most searching roentgenologic examination. Diagnosis by symptoms, as well

---

* From the Edward N. Gibbs Memorial X-Ray Laboratory, New York University, and the Roentgen-Ray Department of St. Luke's Hospital, New York.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

as by many of the clinical tests, has been found very misleading. In a large number of cases a general visceroptosis can be diagnosed in the course of a physical examination, especially in multiparas with lax abdominal walls and protuberant abdomens, but even here mistakes can be made, as proved by roentgenograms.

There are two theories of ptosis generally accepted:

1. Glénard's theory, according to which it is a nutritional disease and "hepatic diathesis" with atrophy and prolapse of the small intestine. This would practically condemn the sufferer to everlasting invalidism.

2. Stiller's theory, according to which it is a universal asthenia, characterized by weakness and laxity of the viscera, and is manifested by degeneration. Surgical procedure would, therefore, be useless. Against this theory is the fact that enteroptosis is rare in men and frequent in women.

We believe the water-trap stomach to be a morphologic entity, a deformed organ which gives rise to a certain definite train of symptoms.

The factors generally acknowledged as causing the disease are misuse of corsets, tight lacing and changes due to pregnancy and childbirth. These factors are undoubtedly very strong, but the congenital side has usually been overlooked or underestimated. Rövsing has divided the subject into virginal and maternal coloptosis. Virginal coloptosis, he says, begins in the first or second year after puberty, and is characterized by persistent constipation, cardialgia and the eating of many small meals.

This condition, we believe, is due largely to congenital causes, such as faulty development of the gastro-intestinal tract associated with abnormally long mesenteries of the stomach or colon, and the very common condition of a long pelvic colon. Given these conditions, bad habits and bad intestinal hygiene may bring on the symptoms found in these patients. The influence of corsets and tight lacing have, we believe, been greatly overestimated. As a rule, when one asks the question as to tight lacing the patient replies, "No, I never could lace tight; the pressure on my stomach made me too uncomfortable." On the other hand, there is the other type in which tight lacing may have been one of the strong factors, as shown by the depression of the ribs and the elongated flattened liver.

In these virginal cases the patients show almost invariably a very long bony thorax and narrow costal angle, and a comparatively large pelvis. There is too little room in the upper abdomen for the organs that naturally belong there. The abdominal muscles in these patients are usually well developed, with firm recti and no lax bulging abdominal wall. These patients often have the type of organ about to be described—the water-trap or drain-trap stomach.

The chief characteristic of this stomach is the relatively high, but normally placed, pyloric outlet, which is well held up by the gastrohepatic ligament and the retroperitoneal tissue to the spine. The vertical diameter is always long. In sixteen of our cases which we studied in detail, the longest diameter, usually nearly vertical, varied from 23 to 38 cm. (from 9 to 15 inches), averaging 26 cm. (10½ inches). The distance from the junction of the first and second portions of the duodenum to the most dependent portion of the greater curvature is abnormally long. This portion of the stomach, briefly referred to as the pyloric arm, varied from 13.5 cm. (5¼ inches) to 24 cm. (9½ inches). In other types of stomach this distance varied from 4 cm. (1½ inches) to 8 cm. (3 inches), which length is in itself sufficient to rule out deformity of water-trap type. The average length of the pyloric arm in the sixteen cases referred to was 16.5 cm. (6½ inches). The distance from the umbilicus, or from a line drawn across the upper level of the iliac crests varied from 7.5 to 20 cm. (from 3 to 8 inches). This distance in normal stomachs averages 3.5 cm. (1½ inches). These measurements were made on roentgenograms taken from one to five minutes after the administration of a bismuth meal consisting of 90 gm. of bismuth subcarbonate suspended in 600 c.c. of fermented milk. The water-trap stomach might almost be considered as a ptosed organ, with the first portion of the duodenum and the pylorus fixed in proper position, giving the characteristic long pyloric arm and resemblance to a water-trap. The colon in the sixteen cases cited was ptosed in amount corresponding to the degree of ptosis of the greater curvature of the stomach.

In practically every case of water-trap stomach the colon is either ptosed or there is a very long loop in the transverse portion, which corresponds in contour to the greater curvature of the stomach. In our classification of colons we consider the colon ptosed only when the cecum and hepatic flexure are ptosed, for it is the exception to find the colon high when the cecum is ptosed.

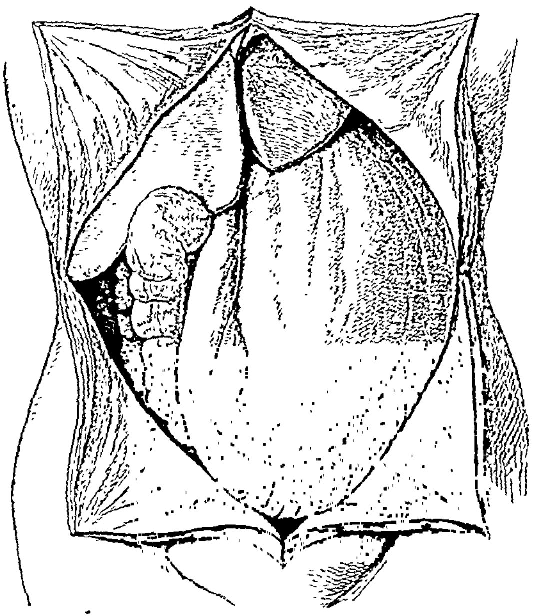


Fig. 1.—Water-trap stomach; from an anatomic dissection.

This paper is entirely too short to give the detailed reports of the one hundred cases studied, so we give a summary of the important facts merely.

TABLE 1.—ANALYSIS OF ONE HUNDRED CASES OF WATER-TRAP STOMACH

	No. of Cases
Males	4
Females:	
Married	47
Single	49
Between ages of 15 and 19	4
Between ages of 20 and 29	28
Between ages of 30 and 39	37
Between ages of 40 and 49	20
Between ages of 50 and 59	10
Over 60 years	1
Total	100
History of vomiting obtained in only 35 cases.	
Residue shown	55
Colon ptosed shown	84
Constipation shown	45
Operated on	18

It will be noted that the water-trap deformity is extremely rare in men. It is of paramount importance to note that child-bearing can have little or no relation to the lesion, because half of our cases have occurred in unmarried women. Only four out of the sixteen cases especially studied were multiparas. While these patients have invariably suffered for years with symptoms erroneously diagnosed as neuralgia of the stomach, ulcer of the stomach, nervous indigestion, neurasthenia or dyspepsia, the limit of endurance has been reached only after about fifteen years of suffering. And while we have observed the water-trap deformity of the stomach in early youth and a tendency to the condition in childhood and often in infancy, as shown by roentgenograms, the usual time at which these patients present themselves for radical treatment is between the ages of 30 and 40. It is conceivable that this condition of the stomach is aggravated by faulty living, improper food and constipation, but it is more probable that the true water-trap stomach has a close analogy, for example, to inguinal hernia, which is now universally conceded to be of congenital origin with trauma superimposed. If this be true, it is at once evident that the water-trap deformity when of marked degree is as surely amenable to surgery as is an irreducible hernia. Vomiting is shown by Table 1 as infrequent, and was rarely a marked symptom. Residue in the stomach was much more frequent, and part of the symptoms could often be traced to this condition. Coloptosis was nearly always present, although about 16 per cent. showed no ptosis, and 4 per cent. showed an abnormally long colon without any ptosis. Constipation is, apparently, not so strong a factor as is generally supposed. We know that constipation is improved and, in some cases, relieved by suspension of the stomach and colon. There is ground to believe that this may in part be due to the increased amount of water turned into the colon, or to reestablishment of the normal activating processes of the peristaltic enzymes. Water has been shown, experimentally, by Draper[1] to be absorbed vicariously from the stomach under conditions of intestinal obstruction. When these stomachs are successfully operated on, they empty completely within a few hours, so that the water which previously was absorbed from the stomach now has a chance to reach the colon and thereby prevent constipation.

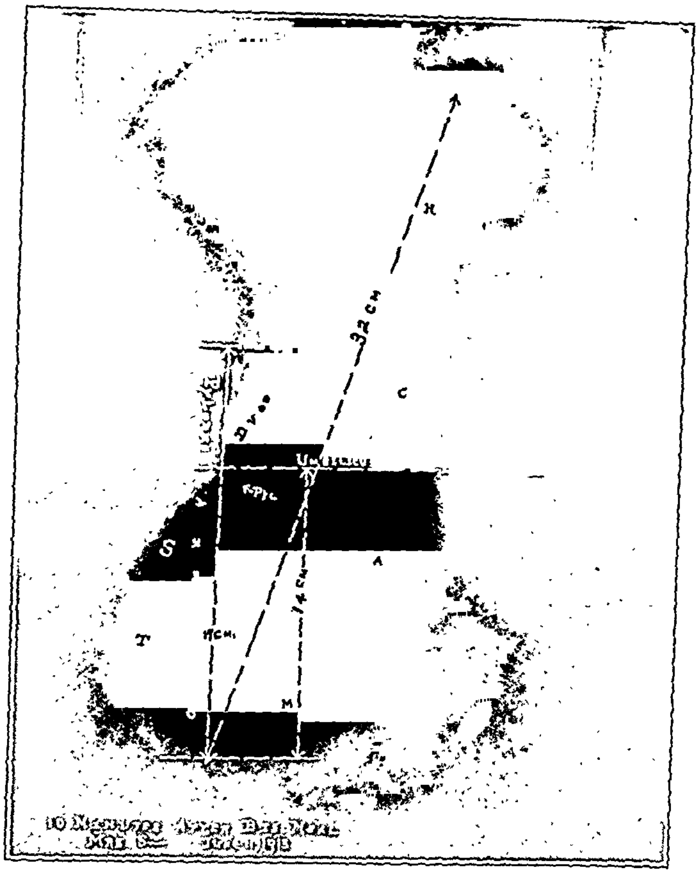


Fig. 2.—Typical water-trap stomach. Pyloric arm 19 cm. (7½ inches).

Furthermore, in considering the shape and position of the viscera, and in studying the symptomatology, there appeared to be a very constant drag of the ptosed, hollow viscera on the visceral nerves and blood-vessels, and this drag must be an important symptomatic factor. Another factor is the presence of a residue in the stomach long after the usual emptying time. Such a residue was demonstrated in the roentgenograms in 50 per cent. of the cases. The muscular action and the resulting emptying coefficient in practically all of these patients are below par.

Eighteen of the one hundred cases were treated by abdominal section. As these cases are of extreme interest, one case will be reported in detail:

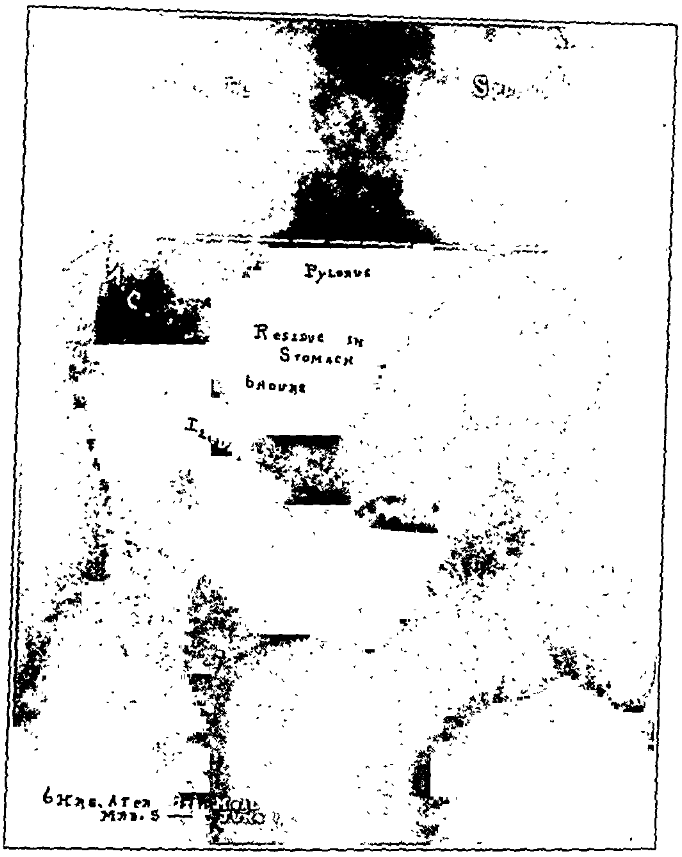


Fig. 3.—Same case as Figure 2. Large residue. Findings confirmed two weeks later, followed by an immediate operation.

Mrs. L. E., aged 31, nullipara, with severe progressive neurasthenia and hysteria for years, variously diagnosed as nervous indigestion, neurasthenia, hysteria, anemia, etc., when seen, had periodical attacks of vomiting occurring every two weeks. She had lost about 40 pounds and was extremely emaciated. After one severe vomiting attack, lasting two days, roentgenograms showed a very marked water-trap stomach and coloptosis. Medical treatment had absolutely no effect, and after another severe attack of vomiting with bright blood in the contents, laparotomy was performed. The condition as outlined by the roentgenograms was verified, the lesser curvature being found well below the umbilicus and the pyloric extremity fixed in normal position.

The ventral surface of the stomach was sutured to the abdominal wall and the mesentery of the transverse colon was also sutured to the abdominal wall just above the level of the umbilicus. The results have been very satisfactory. The gastric symptoms have gradually disappeared, the neurasthenia and hysteria are completely cured, the constipation is relieved and there has been a gain in weight of 15 pounds. Roentgenoscopy one year after operation showed the stomach and colon in place, and to-day, two years after operation, the patient is well and without medical attendance.

---

[1] Draper: Personal communication.

In practically every case in which a thorough form of suspension technic was employed the patient has, up to date, done well. Operation is apparently the only rational treatment in certain selected cases. Gastropexy and colopexy are safe procedures. Gastro-enterostomy may cure, but is not to be preferred. Suspension will give instant and possibly permanent relief, if a careful and well-studied technic is followed. The symptoms that have been relieved are the drag, intestinal indigestion as shown by flatulence, neurasthenia and in many cases constipation. In four of these operative cases previous appendectomy had given no relief in symptoms. In the sixteen special cases, previous appendectomy had given no relief to symptoms in five cases. In nine cases the appendix was not removed during the operation, and the results have been good. In one case, with a water-trap stomach, appendectomy alone without suspension of the stomach was performed with no improvement following the operation. Later a gastro-enterostomy was performed which relieved the patient's sufferings.

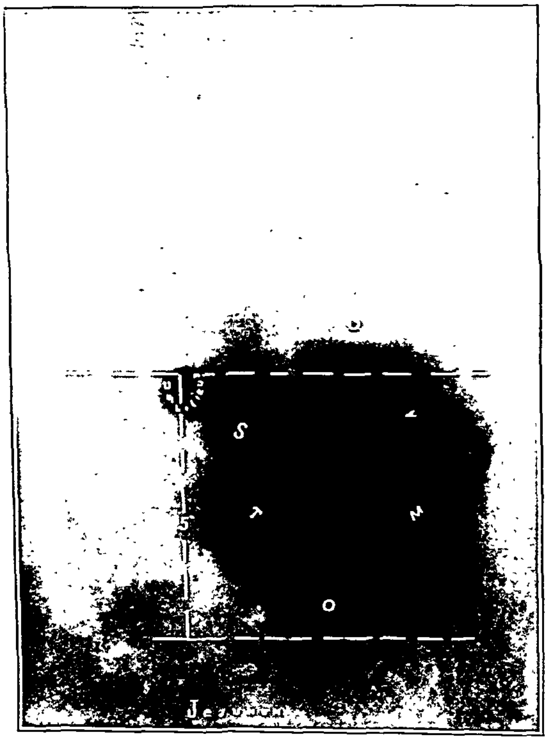


Fig. 10.—Miss M. W., aged 30. A case of well-marked water-trap stomach with residue.

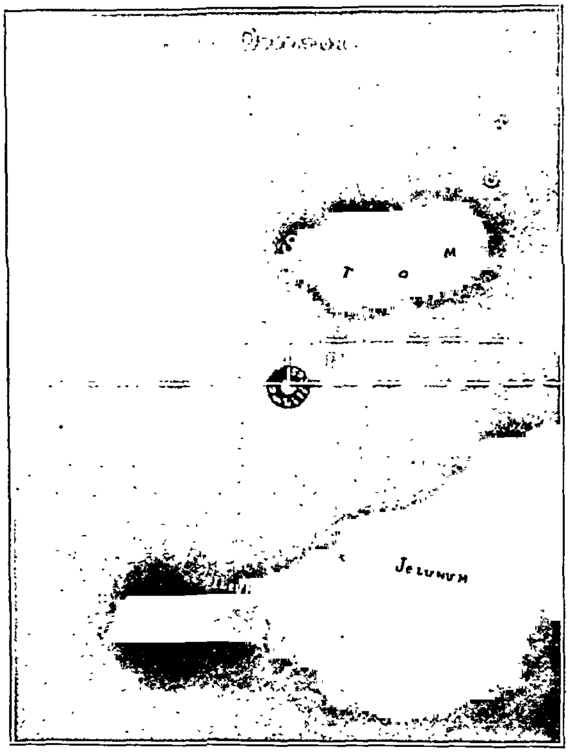


Fig. 11.—Same case as Figure 10, after operation—gastropexy and colopexy. Also appendectomy and fixation of both kidneys.

MEDICAL TREATMENT

After localization of the trouble by roentgenoscopy, the examination is completed by means of analysis of gastric contents, feces and urine. After the exclusion, then, of the more serious and perhaps operative conditions of ulcer, malignancy or obstructions, and since ptosis is probably the most important factor, the first thing is to endeavor to relieve this condition. Operation is indicated in special cases, which will be described later. Nearly every patient will be benefited and sometimes entirely relieved by wearing a properly fitting abdominal belt or corset. The selection is important. When there is small discrepancy between the circumference at the waist and that at the pelvis, a corset with an abdominal flap (a surgical corset) will act well; but when the conditions are reversed, as in one patient who measured 22 inches at the waist and 34 inches around the pelvis, the corset is inefficient. In patients with this figure we have used a web abdominal support reinforced with a colon pad. This is also the type of support used for male subjects.

The corset and supports should be applied the first thing in the morning, with the patient on the back and pelvis elevated, and should be worn all through the day as long as the patient is on the feet, and removed before retiring. Another aid is to raise the foot of the bed, gradually, from 1 to 5 inches or more. This takes advantage of nearly one-third of the twenty-four hours to allow the stomach and colon to gravitate to their proper places. With a water-trap stomach, the patient should lie on the right side, with the foot of the bed slightly elevated, for about an hour after meals. This allows the stomach to empty, and it is of material aid. One patient with this condition gained 17 pounds in six months following these instructions, even without an abdominal support. The effect after a short time is to relieve the feeling of drag in the abdomen and also aids the constipation.

The treatment of the constipation is the next step. This is the most difficult procedure. Regulation of the diet by avoiding the constipating foods and giving those most likely to have a laxative effect should be carried out. All laxative drugs should be stopped, and the most that should be allowed is an occasional enema. The colon should at first be thoroughly emptied in the following manner: With the patient in the knee-chest position, from 6 to 8 ounces of warm cottonseed oil are given by rectum the last thing at night, and allowed to remain in the bowel over night. The next morning the bowel is flushed out first with 2 quarts of ox-gall solution, from 2 to 4 drams to the quart, which is followed by two quarts of normal saline solution. This process is repeated in three positions: (1) on the back; (2) on the side, and (3) in the knee-chest position. The immediate results may not be much, but in a few hours there is usually a copious evacuation. In some cases, when the fecal matter is high up, 1 ounce of castor oil every night for three nights is given.

The correction of the stomach abnormality is next considered. When the hydrochloric acid content is diminished or absent, prolonged administration of dilute hydrochloric acid is often of great assistance and may alone offset the constipation. After employment of this treatment for several months the gastric juice has returned to normal.

Massage regularly applied to the colon, which has been definitely mapped out by roentgenoscopy, is very helpful. Vibration, carried out in the same manner, is even more helpful in some cases. Among the preparations given by mouth, agar-agar, powdered or granulated, has been the most successful. This should be given in teaspoonful doses three times a day, with meals. If there is stasis in the pelvic colon, this portion of the bowel should be cleaned out at regular intervals.

The question of exercise should be regulated by the amount of ptosis. In severe ptosis, overexercise, especially without abdominal support, does harm. Moderate exercise and fresh air will do much more good. Patients with ptosis in which sedentary life and nervous influences play an important part, should live where outdoor life will help to keep them in good condition.

SURGICAL TREATMENT

The indications for and against operation may be summarized as follows:

1. Care should be taken not to operate on a simple, ptosed stomach, with or without dilatation. This rule is subject to occasional modifications.
2. The typical water-trap stomach of mild degree which does not yield to medical treatment should be operated on.
3. The typical water-trap stomach of marked degree, which shows a large residue in the stomach after six hours, should be operated on when diagnosed.

CONCLUSIONS

1. Water-trap stomach is a morphologic entity which gives rise to a certain definite train of symptoms.
2. Its origin is probably embryologic and developmental.
3. It should be distinguished from a simple gastroptosis, with or without dilatation.
4. It occurs most frequently in women, but as frequently in nulliparas as in multiparas.
5. It is not infrequently wrongly diagnosed as ulcer of the stomach or duodenum.
6. Its exact diagnosis is impossible without the aid of roentgenoscopy.
7. In the mild grades medical treatment may be sufficient (analogous to the treatment of a hernia by means of a truss).
8. In severe grades operation offers a means of radical cure (analogous to the radical cure of hernia).
9. In the most severe grades operation is life-saving (analogous to the operation for strangulated hernia).

125 West Fifty-Eighth Street—338 East Twenty-Sixth Street.

POINTS OF VALUE IN ROENTGENOSCOPY OF THE GASTRO-INTESTINAL TRACT *

R. WALTER MILLS, M.D.
Instructor in Medicine, Washington University Medical Department
ST. LOUIS

The ordinary methods of physical examinations have never been satisfactory when employed to determine the normal and pathologic topography, conditions and activities of the gastro-intestinal tract. Percussion, on account of the abdominal gases and solids, furnishes only the crudest information and is often actually misleading. Auscultation rarely furnishes evidence indicative of specific conditions; there are no normal sounds of constancy that may act as a means of comparison. Inspection furnishes no information not better elicited by palpation, with the exception of the observation of visible peristalsis. Palpation is of much value when suitable conditions exist.

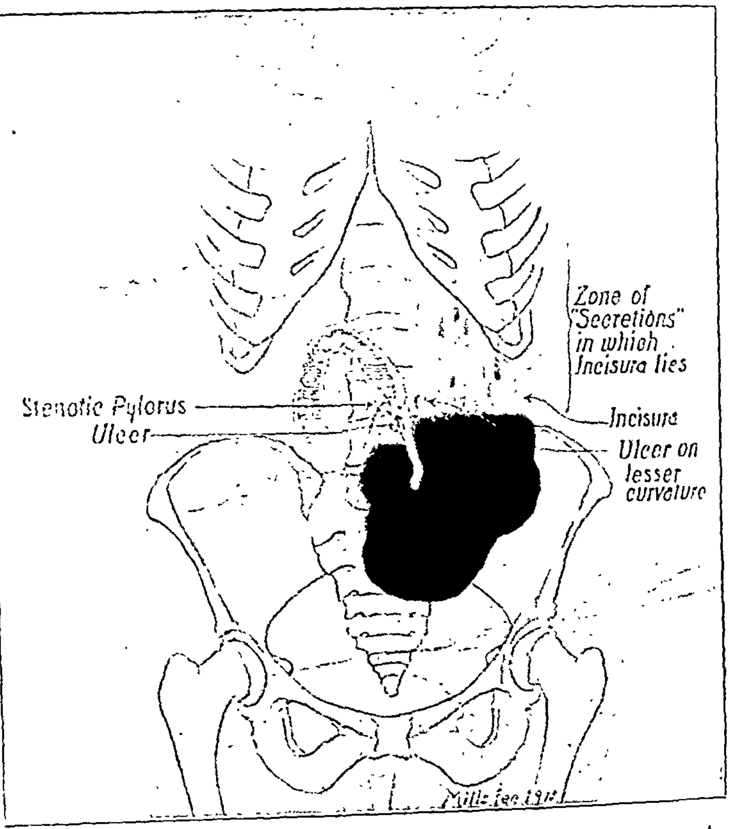

Zone of "Secretions" in which Incisura lies
Stenotic Pylorus
Ulcer
Incisura
Ulcer on lesser curvature

Fig. 5.—Schematic drawing from fluoroscopic tracing and roentgenograms showing a compensated dilatation due to pyloric ulcer obstruction. The stomach shows approximately normal form and position, though dilated, a true megalogastrium (compare Fig. 8). An incisura occurred on the greater curvature opposite its ulcer, and above the level of the bismuth, necessitating palpation for its (fluoroscopic) visualization (see Fig. 6). The case illustrates the value of the Roentgen-ray in establishing and locating multiple ulcers.

Into this situation is now introduced a method approaching precision for the purposes mentioned—the visualization of the gastro-intestinal tract by the Roentgen ray through the ingestion of an opaque substance, usually bismuth—a method which appeals to the most accurate of the senses, sight, and at once accomplishes much that we have been attempting to force from the ordinary methods of physical examination.

It is my object to review those points in gastro-intestinal roentgenoscopy which seem best established and of

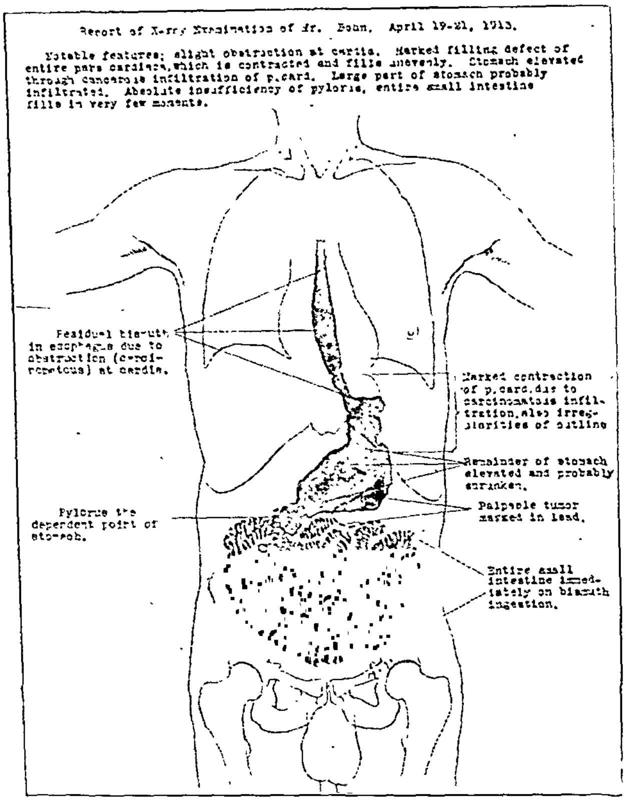
---

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

most value. The cases shown are from the Washington University Hospital and Outpatient Department. I desire to thank Drs. Dock, Murphy and Myer, from whose services the cases have been largely recruited, for permission to use them.

Roentgen examination of the esophagus gives the most accurate and constant findings of any part of the alimentary tract. Its chief value is in conditions resulting in obstruction or in those in which diverticulum is present. The point and degree of an obstruction may be located; often information is afforded as to its nature and extent by changes in the form of the esophageal lumen, by the size and form of the dilatation, or by hyperperistalsis proximal to the obstruction.


Report of X-ray Examination of Mr. Bohn, April 19-21, 1913.

Notable features; slight obstruction at cardia. Marked filling defect of entire pars cardiaca, which is contracted and fills unevenly. Stomach elevated through cancerous infiltration of p. card. Large part of stomach probably infiltrated. Absolute insufficiency of pylorus, entire small intestine fills in very few moments.

Residual bismuth in esophagus due to obstruction (carcinomatous) at cardia.
Marked contraction of p. card. due to carcinomatous infiltration, also irregularities of outline
Remainder of stomach elevated and probably shrunken.
Pylorus the dependent point of stomach.
Palpable tumor marked in lead.
Entire small intestine immediately on bismuth ingestion.

Fig. 11.—Hospital report showing reduction in size of stomach and deformity as a whole resulting from general carcinomatous infiltration. Insufficiency of the cardia (esophageal regurgitation) as determined later at necropsy and not stenosis of the cardia as indicated on the report. Also extreme insufficiency of the pylorus (entire small intestine filled almost instantaneously) are manifested. Post-mortem two months later showed small intestine canalizing a cancerous mass (colloid) and that the "palpable mass" corresponded to a mass of cancer-infiltrated omentum; note that in the figure it does not register with the stomach.

In uncomplicated diverticulum, marked localized extra-esophageal retention occurs with little interruption as to the continuity of the bismuth stream through the lower esophagus and a gastric filling in approximately normal time.

It is difficult to obtain a plate that shows the diverticular efferent stream (Fig. 1). In carcinoma, characteristic findings are localized obstruction in the passage of bismuth through the esophagus, retention and dilatation above, and irregularity at the esophageal lumen at or below this point (Fig. 2). Obstruction at the cardia is manifested by gross unlocalized esophageal retention and varying grades of dilatation and hyperperistalsis. Esophageal retention due to aneurysm or pressure from other extra-esophageal cause may be detected; visualization in this way of the esophagus may be of aid in determining the topography of the impinging structure.

The Roentgen ray has radically changed our ideas with regard to the form and position of the stomach. The stomach extends far lower and is more vertical in most persons than was supposed. It is fixed only at the cardia and at the first portion of the duodenum by the gastrohepatic ligament. There is no gastroptosis; the cardia is never ptosed. In so-called gastroptosis we have a pendulosity, a sagging of the middle portion of the stomach, and a pyloroptosis dependent on atony, and a congenital or acquired lack of normal intra-abdominal or abdominal muscular support, or skeletal deformity (Fig. 3).

The stomach is an organ of the widest variation as to form and position in different persons; this is true also with regard to gastric tonus. By tonus we mean that resilience or elasticity of the living stomach under natural conditions which enables it to hold up its contents in a columnar form, one of the chief factors in giving form to the stomach. Lack of tonus, atony, is accurately shown by the Roentgen ray (Fig. 15). The Roentgen ray has shown that the stomach is no larger than its solid or liquid contents, no matter how small, and that when empty, in life under normal conditions, it is tonically contracted, probably to a tubular form. The observation of gastric peristalsis by the Roentgen ray is a method of precision, but is a most difficult one and so far relatively unfruitful in its interpretation.

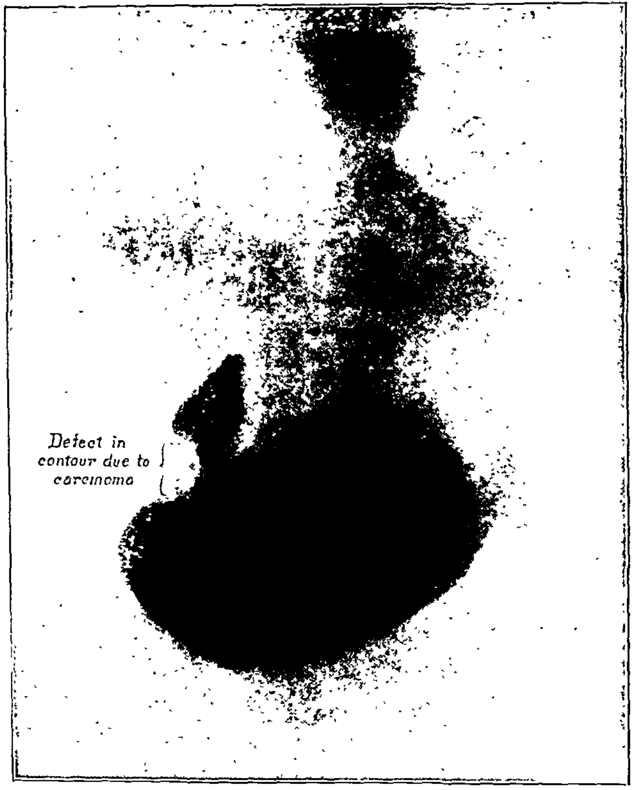
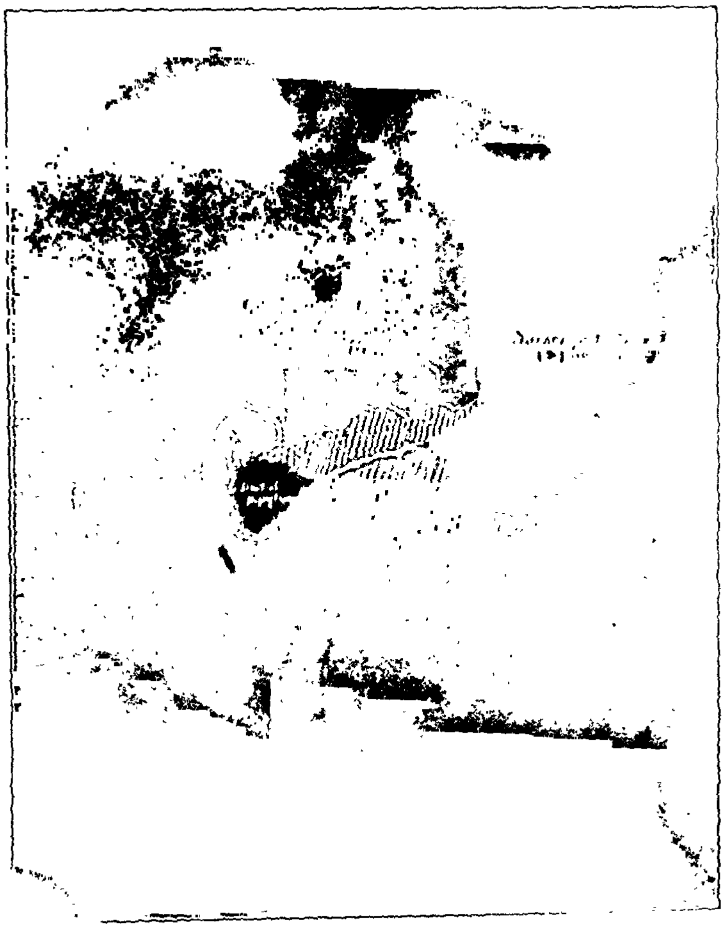


Fig. 12.—A filling defect due to the small localized carcinoma immediately proximal to and slightly involving the pyloric ring. Carcinomatous degeneration of an old stenosing pyloric ulcer is suggested by the degree of dilatation (i. e., increase in the right median distance) which is greater than I have seen developed in a recent (carcinomatous) condition. Resection by Dr. N. B. Carson. Referred by Dr. Walter Fischel from the Skin and Cancer Hospital. Very slightly retouched.

Each person possesses a stomach that fits his body; there is no normal type of stomach; I believe that the form of the stomach under normal conditions may be anticipated from an observation of the person's physique and strength. The same is true of gastric tonus and the rate of motility or clearance. In persons of sthenic habitus the stomach is of high and more transverse position, of strong tonus and quick motility. In those of asthenic habitus, so-called congenital enteroptotics, it is low in position, vertical, weak as to tonus, and slow in motility. If, however, it adequately serves its purpose, it is normal for its owner. Views of the stomach from different angles are of use in locating pathologic lesions (Fig. 4).

In ulcer of the stomach the Roentgen ray may give characteristic findings. The proportion of cases in which this occurs is probably about 75 per cent. In the future it will be larger. These are chiefly changes in tonus with resulting anomalies of form, or primary changes in form. Ulcer of the approximately vertical portion of the stomach gives most of the definite findings.

Ulcer of this location may cause a sharply localized tonic spasm of the circular muscular fibers at its level,



3.—Roentgen
stom
st

showing obliteration of a large portion
ssive syphilitic infiltration. Marked
vidence of latter in the plate).
shadow after gastrojejunostomy
s shown by later examinations.
taken for carcinoma. Slightly

d drawing in,
curvature opposite
lpation may be
incisurae con-
pars media and
connection with
me localized spasm
of the first bismuth
portions of the stomach; canali-
affected by its relaxation. If the
ra of such depth as
speak of the result-
hour-glass stomach

The crater of an ulcer may be visualized by the Roentgen ray through virtue of the bismuth it contains, provided that it is situated on the periphery of the stomach shadow or that it is possible to so turn the patient as to silhouette its outline (Fig. 7). Chronic penetrating ulcer results in spectacular roentgenoscopic findings. Ulcers penetrating adjacent parts thus allow access of the gastric digestants to unprotected tissue. A cavity adventitious to the stomach may thus be excavated. Such a diverticulum will be graphically shown by the Roentgen ray as a small usually circular shadow capped by a gas-bubble without the main stomach mass. Organic hour-glass stomach can be diagnosed by the Roentgen ray. The picture is that of two atypical gastric ventricles connected by an irregular isthmus. The filling of the lower sac takes place slowly by seepage.

Ulcer of the pars pylorica seems often to result in no characteristic changes unless obstructive. If ulcer or its cicatrix obstruct the pyloric lumen a dilatation of the stomach results which the Roentgen ray graphically shows. If the obstruction be uncompensated the stomach enlarges in all its lower lateral diameters, especially in the right median distance (Fig. 8). If there be a compensatory hypertrophy of the gastric walls, the stomach seems, certainly in some cases according to my experience, to resume its normal position and form, though dilated, a true megalogastrium (Fig. 5).

Little has been learned of gastric ulcer by a study of gastric peristalsis; considerable from a study of its resultant motility. In pyloric obstruction peristalsis is periodically markedly increased, though in the lesser grades not more so than in certain non-obstructive conditions. Normally the stomach empties itself of a bismuth meal in from one and one-half to six hours, depending primarily on the type, as to physique, of the person. In asthenics this time may be extended (bismuth media). In ulcer, motility is sometimes delayed; in pyloric obstruction for obvious reasons, and in non-obstructive ulcer at times on account of true pylorospasm due to superacidity. In organic obstruction I have seen a considerable amount of bismuth in the stomach forty-five hours after ingestion. The physique of the individual must be considered in judging motility.

The Roentgen ray is of value in locating and otherwise correlating for diagnostic purposes painful and pressure sensitive points due to ulcer. Such pressure sensitive loci are due either to reflex hyperesthesia in the abdominal wall or an irritation of the parietal peritoneum through ulcer-evoked perigastritis. A reflex pressure-sensitive locus does not overlie an ulcer, or does so only as a coincident. The parietal peritoneum can localize an irritation, so clinical symptoms of perigastritis add much to the probability that a pressure-sensitive point overlies an ulcer. This is still more probable if the point registers with a site suggested by roentgenoscopy as the seat of ulcer. The great majority of pressure-sensitive points in ulcer subjects are found to fall without the shadow of the filled stomach. They are reflex, and so far of no clinical value.

The most valuable single feature of gastro-intestina roentgenoscopy is that it offers aid in the early diag nosis of cancer of the stomach; yet it is unfortunatel true here as in the clinical examination that the earlie the growth the less positive its manifestations. Gastri cancer manifests itself roughly as either an irregularit of outline, at times amounting to an obliteration of som portion of the stomach (Fig. 9); as a local excavatio on the periphery of the bismuth shadow (Figs. 10 an 12), or as an irregular diminution in the size the shadow as a whole (Fig. 11). It may be evinced only by a change in density of the bismuth shadow. Associated with any of these, confusing tonic spasmodic contractures may occur excited by involvement and irritation of the gastric circular muscular fibers (Fig. 10). One cannot in a few moments even suggest the possibilities. Figure 12 shows a very slight defect due to early carcinoma. The diagnosis was aided by clinical evidence of pyloric obstruction, though probably no operation would have been attempted but for the roentgenoscopy, which showed most of the gastric wall intact. A very small cancerous mass was found at the spot indicated, an ideal case for operation.

I have attempted to develop a method for correlating abdominal physical findings, such as tumefaction, pressure-sensitive loci or areas of visible peristalsis, with those of the Roentgen ray. Such clinical findings are marked in lead on the patient's body before the roentgenoscopy; especially interesting results are obtained in the case of tumefaction in or near the stomach. Figures 3, 9 and 11 illustrate the method of recording these findings for hospital histories; they are made from routine reports. Each figure is exactly that of the patient in question reduced to scale; the stomach and intestines likewise. All abdominal landmarks, physical and Roentgen ray findings bear their actual relations.

Other gastric tumors give findings similar to those of carcinoma. Figure 13 shows an obliteration of the pars media by syphilitic infiltration resulting in marked obstruction.

Ulcer of the duodenum gives less valuable Roentgen-ray evidence than does gastric ulcer. Most duodenal ulcers occur in the first portion of the duodenum, recognized roentgenoscopically as the "cap." A persistent deformity of this cap may indicate ulcer. The cap may be drawn out of position or deformed by adhesions secondary to ulcer periduodenitis. Overprompt initial gastric motility has been repeatedly mentioned as an indication of duodenal ulcer, possibly due to an interference with the tonic closure of the pyloric sphincter that exists before the onset of the later, more powerful, pyloric acid reflex. It is so far the most valuable indication of duodenal ulcer. Such hypermotility occurs, however, in other conditions, notably those causing hypo-acidity. The form of the stomach in duodenal ulcer seems different from that of gastric ulcer, being higher and more transverse. Hyperperistalsis is another usual accompaniment. A pressure-sensitive point overlying the ulcer seems more constant in duodenal than in gastric ulcer. It can only be a reflex whose registration with the ulcer region is coincident.

Stenosis of the duodenum, if distant from the pylorus, may be diagnosed by the Roentgen ray. In stenosis large rhythmical ball-like waves may be seen proximal to the point of obstruction. Figure 15 shows these due to obstruction of the terminal duodenum from involvement in an ulcer mass. Figure 16 shows apparently a dilatation of the stomach in an infant, in reality a common dilatation of duodenum and stomach, due to a congenital stenosis in the third portion of the duodenum.

The points of value with regard to Roentgen-ray examination of the jejunum and ileum are so far practically limited to lesions causing obstruction and the observation of motility. Unusual difficulty is offered by the attenuation of the bismuth column in the small bowel and the rapidity of its passage. Certain findings lead one to entertain the idea that the rate of gastric clearance controls the rate of passage through the small intestine. I have seen a case in which the entire small intestine was almost instantly canalized when extensively involved by colloid carcinoma (Fig. 11). Another in which this occurred in seven minutes as the result of an overpatent gastrojejunostomy (Fig. 17).

The field opened by the Roentgen ray for the investigation of conditions of the colon is so vast and as yet so far from exhausted that even generalities are difficult. Investigations are conducted after, or better, during the administration of a bismuth-containing enema, less desirably by the feeding test except in cases of obstruction. A bismuth enema given with an ordinary rectal tip will in a few moments canalize the entire colon, proving the high enema an absurdity. The colon, like the stomach, is subject to great anatomic variation, especially as to length and the arrangement of its various parts; the two flexures alone are fixed. So-called redundancy is probably normal for persons in whom it occurs. Figure 18 shows the cecum and proximal transverse colon adherent in an old appendiceal abscess mass.

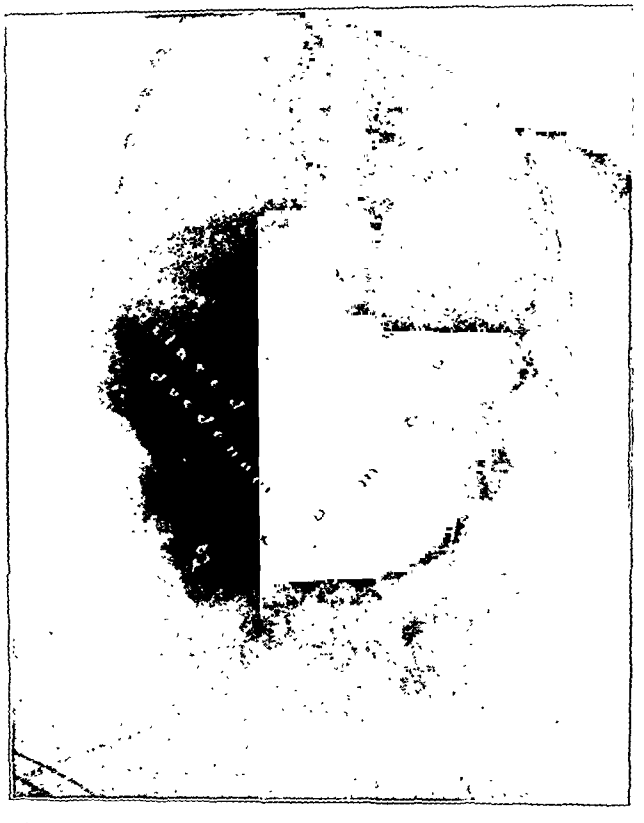


Fig. 16.—Roentgenogram showing findings in a case of common dilatation of stomach and duodenum in an infant, due to a congenital obstruction in its third portion. In other plates taken later the duodenum is shown as filled, while most of the stomach is empty.

The different types of constipation give interesting findings on roentgenoscopy both as to the portion of the colon in which the motor delay occurs and the associated anomalies of tonus. In spastic constipation, the hypertonicity is graphically indicated. Probably the two most valuable points so far established in Roentgen-ray examinations of the colon are that it affords a means of studying the motility of the different portions of the colon, and of determining points of obstruction, both benign and malignant.

It is self-evident that the Roentgen ray may be of great aid to the internist and surgeon in the diagnosis of gastro-intestinal affections. It will be of great value in problems of surgical interest. It is of value in locating gastric lesions and at times establishing their nature; for instance, in determining the presence of multiple ulcers, as has occurred several times in my experience (Fig. 5). It is of great use in establishing the patency of a gastro-enterostomy opening (Fig. 17) of the pylorus after surgical treatment, or of the condition of the stomach after resection. It is of aid in locating points of intestinal obstruction and of determining their nature. The Roentgen ray should limit the number of useless exploratory laparotomies in gastric cancer in which the stomach is extensively involved, as it gives valuable information regarding the operability.

CONCLUSIONS

With considerable hesitancy I shall offer certain conclusions. The subject is new and undeveloped. There is a large amount of careful work necessary, anatomic, physiologic and clinical, before its true value can be established. I realize that our knowledge of to-day is fragmentary and will be in part the ignorance of to-morrow.

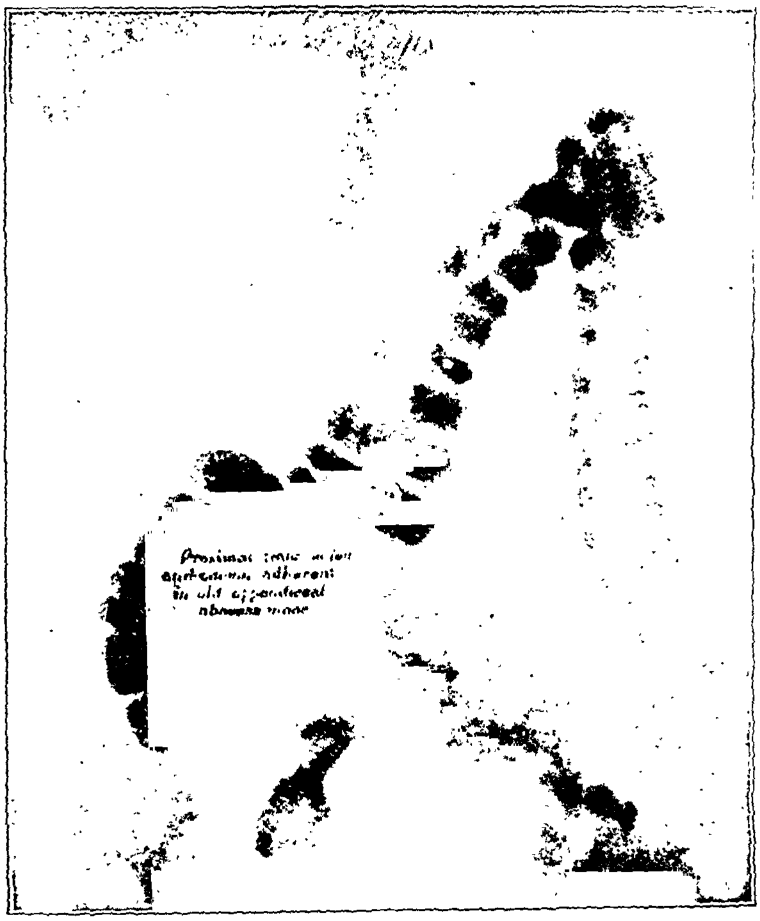


Fig. 18.—Roentgenogram showing cecum and proximal transverse colon adherent in an old appendiceal abscess mass; palpable tumor corresponding to such.

I believe gastro-intestinal roentgenoscopy of great value. Never previously in the history of medicine has a means of physical examination of so great possibilities been so suddenly developed. I should rank it only secondary to the anamnesis in the diagnosis of non-acute gastro-intestinal disease.

The method can be of greatest worth only if correlated with the clinical findings. To estimate its value alone is decidedly interesting and furnishes a check to overenthusiasm but does not indicate its true efficiency. Roentgenoscopic evidence if unsupported by clinical findings must be overpoweringly suggestive to gain recognition. This means that, at present at least, the medium can be most effective only if used conjointly by clinician and roentgenologist, and if both realize that clinical training is the essential in the correct interpretation of Roentgen-ray findings. Regarding the question of the relative value of fluoroscope and plate in gastro-intestinal roentgenoscopy, I believe that the two used conjointly more than double the value of either alone; but of the two, that the fluoroscope is of decidedly greater worth.

The need for conservatism in the interpretation of Roentgen-ray gastro-intestinal findings is very great; the personal equation is unavoidably a considerable one. Deductions should be controlled by operation or postmortem, and in conditions from whose nature this is not possible, by irrefutable clinical evidence.

Wall Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JANEWAY, SATTERLEE AND MILLS

Dr. Chevalier Jackson, Pittsburgh: It would be idle to say that gastroscopy is easy to any one except the skilled esophagogastroscopist. The difficulties can be classed under two heads: first, the instrumental difficulties; second, the technical difficulties. The instrumental difficulties have been practically overcome by the work of Dr. Janeway whose gastroscope accomplishes gastroscopy in a practical manner. On the two different occasions I obtained a most beautiful view of the stomach through this instrument. The respiratory movements, the transmitted pulsatory movements and the various reflex contractions keep the gastroscopic field constantly shifting; but the man who studies the stomach in a careful way gets practical views of the interior and valuable clinical findings. The important point, however, is that the Janeway gastroscope is a practical instrument. The need now is for endoscopists who will use it. In order to overcome the technical difficulties of gastroscopy, the gastroscopist must be a mechanician. He does not need to be able to build a gastroscope, but he must be able to manage it. I know of a man who tried three different times, by esophagoscopic methods, with general anesthesia each time, to get a coin out of the esophagus near the upper orifice. Dr. Ellen J. Patterson took out that coin in a fraction of a minute without any anesthesia, general or local. The physician asked where he could get the instruments, and what they cost. He never thought of asking where he might get a few lessons on esophagogastroscopy. He thought that it was all in the instrument and that if he had had a better instrumental equipment his success would have been easy.

The second class of technical difficulties concerns the introduction of the instrument. While acquiring technical skill the operator tears up the mucosa of the pharynx, though not that of the esophagus or stomach. In regard to the results of gastroscopy: In preparing statistics for the International Medical Congress, I collected almost one thousand cases, out of which the mortality was practically nil; the various tints of the normal gastric mucosa have been discovered; diagnoses of various diseases have been made, including gastroptosis, gastrectasia, chronic gastritis, superficial erosions, round ulcer, indurated ulcer, carcinoma of the cardia, pyloris, greater curvature, lesser curvature and gastric syphilis.

I wish to ask Dr. Mills if he does not think it would be wise in mentioning cardiospasm, to classify it into hiatal esophagismus, abdominal esophagismus and cardial esophagismus. The latter, in my experience, has been exceedingly rare.

Dr. John W. Draper, New York: I have watched the development of Dr. Satterlee's and Dr. LeWald's work in regard to the water-trap stomach. It seems to me that it is conservative to look on it as a morphologic entity. You are, of course, familiar with the variations in the morphology of the stomach, as studied by Professor Kerr of Cornell University. He photographed 100 stomachs immediately after death and found that the variation was much greater than in some of those which have been shown here. Nevertheless, it does seem to me, from careful observation of this work, that the water-trap stomach is different from the ordinary dilated stomach.

One can be pardoned for believing that the surmise is correct, which Dr. LeWald suggested to me, that the origin of the thing is somewhat similar, perhaps to the origin of inguinal hernia; that it is a congenital defect, but one which is potential, and not kinetic, until some trauma occurs. My interest has been centered in the cause of the symptoms. These stomachs give symptoms when they have residue. We do not believe that the residue itself causes the symptoms; that is, we do not believe that they are caused by the decomposition of the food, or the material that is put into the stomach at all; possibly that is a small factor: but we believe that the main factor is, in a measure, analogous to the condition which obtains after partial or complete intestinal obstruction. Perhaps that condition itself is explained by an interference with the enzyme interchange in the intestine

The improvement is extraordinary, after the water-trap stomach has been suspended, and the constipation stops at once. From the point of view of physiologic surgery I have been particularly interested in the cause of the cessation of the constipation. We know that water is vicariously absorbed by the stomach in partial or complete intestinal obstruction. It may be, therefore, that after the stomach is raised and allowed to empty in the normal period, there is less tendency to absorption of the fluids, and that, therefore, the colon gets more nearly its normal share. The other factor, however, we believe to be more patent, namely, that the activating enzymes and hormones, productive of peristalsis, are allowed to take their normal course through the canal.

Dr. L. G. Cole, New York: I have seen Dr. Janeway make this examination on several occasions. The ease with which it is accomplished is surprising, and the patient suffers less discomfort than is caused by the ordinary cystoscopic examination and ureteral catheterization. It is remarkable how perfectly this definite method of viewing the stomach dovetails with the examination of the stomach by means of the Roentgen ray. If there is a weak place in the radiographic diagnosis of gastro-intestinal lesions, it concerns the cardiac end of the stomach. The lumen of this portion of the stomach is large and the peristaltic contractions broad, so that any obstruction to their passage is a defect not readily observed. Dr. Janeway's examination of this region is a complete supplement to the careful radiographic examination, and the two examinations combined offer a method of diagnosing gastro-intestinal lesions which excels all other methods.

Dr. M. L. Graves, Galveston, Tex.: I was impressed with one of the conclusions that Dr. Mills drew, and that is, that great conservatism is necessary in interpreting these results. If those of you who are attempting to make diagnoses of gastro-intestinal conditions will follow up your gastric analyses and your radiographic pictures with exposures of stomachs in cases in which diagnosis of gastroptosis has been made by the surgeon, you will often receive a shock when the abdomen is opened. These patients present a symptom-complex similar to neurasthenia; and 80 or 90 per cent. of them are women. They are anemic, with between three and four million blood-cells, a proportional reduction of hemoglobin and a number of reflex nervous symptoms. In making these examinations I frequently distend the stomach with air, and often find the lesser curvature at or below the umbilicus and the greater curvature down toward the pelvic brim.

Then I subsequently refer these patients to the Roentgen-ray department, this particular form of gastroptosis, with an apparently dislocated stomach is at times shown, and then if the patient is operated on the stomach may not be found in the indicated location at all. The greater curvature is found at about the level of the umbilicus, perhaps just above. It is easy, in cases of chronic ulcers with adhesions or with marked obstruction to the outflow from the stomach, to show a dilated stomach or a gastroptotic stomach associated with dilatation; but these cases with the neurasthenic symptom-complex are frequently misleading. Most of the patients in whom water-trap stomachs are diagnosed will be found to have a pyloric or a duodenal fixation. These cases are rather easily diagnosed by roentgenoscopy.

Dr. Fenton B. Turck, New York: The problem brought out to-day was largely that of the congenital character of many of these dilatations of the stomach. We have here not a mere disturbance produced by some anatomic deformity, but rather some disturbance of the musculature of the stomach.

By means of experiments on dogs I succeeded in producing these identical conditions of fatigue of the muscular wall, both acute and chronic. Acute fatigue was produced by placing the animal under anesthesia and distending the stomach for four or five hours, until complete dilatation was observed. We then made sections of the gastric wall and found evidences of Zenker's degeneration of fatigue. We then carried on experiments looking to the production of chronic fatigue by feeding the animals with extracts of beef and decidual bacteria, dilating the stomach by forced feeding and finally obtaining dilatation with retention, and also found in the muscle walls evidences of Zenker's degeneration of fatigue. This series of experiments I have already published.

Clinical study demonstrates that some individuals are slow to recover from fatigue of the gastric muscles. This probably accounts for most of the symptoms in this class of cases; and the evidence shows that treatment should be along the lines of rest and exercise. The rest method must include suitable diet. We find that many patients, even after operation, fail to recover permanently, in that they have a return of this symptom, and that, therefore, in addition to the purely mechanical treatment of these cases, some other method must be devised, either making operation unnecessary or as an adjunct to operation.

The method followed in our clinic is first to withdraw all food for from forty-eight to seventy-two hours; then to give food slowly at long intervals, increasing the amount and shortening the intervals gradually until finally these patients are given each day two meals of a quality suitable to pass readily through the pylorus. The food should be of such a quality that its resultant assists peristalsis and passes readily through the colon. We found many cases which were aggravated by retention of contents in the colon, toxins being produced which acted injuriously on the musculature. Hygienic treatment in addition is applied to the colon and at the same time colonic lavage, with pneumatic gymnastics of the colon (wave movements of a column of air, produced within the colon by use of a Politzer bulb); if these combined local and general treatments are simultaneously carried out, it usually renders operation unnecessary, except in cases of mechanical obstruction.

It is important to note the line of demarcation between purely mechanical obstructions and those due to weakness of the musculature, for the latter are physiologic and should receive physiologic treatment.

Dr. Henry Janeway, New York: It is necessary to caution against drawing a conclusion in regard to the diagnostic value of gastroscopy which is unsupported by facts. The subject is still in its infancy and is susceptible of much improvement; but this much at least may now be claimed; namely, that we have in gastroscopy a practical means of diagnosing lesions involving the vertical portion of the stomach, especially the cardiac region. This is the region of the stomach in which cancer so long remains latent. I believe that we have in gastroscopy a method of making an absolute and an early diagnosis of cancer in this region. The only question that presents itself is how early will patients complain of their symptoms. It is undoubtedly true, however, that a large majority of them do complain of symptoms early enough to enable us to arrive at a diagnosis while the lesion is still capable of being successfully eradicated.

We owe Dr. Jackson credit for the most important development of gastroscopy. He has not only been the pioneer in this field in America but has also been responsible for definite advances. I have simply followed his lead, and I wish to acknowledge my indebtedness to him for a great deal of assistance and many suggestions.

A very important consideration concerns the amount of discomfort experienced during gastroscopic examinations conducted under local anesthesia and the indications for a general anesthetic. Many gastroscopic examinations, probably 50 per cent., can be conducted under local anesthesia without causing the patient serious discomfort. As a test of the amount of discomfort which such an examination may cause, I have been in the habit of asking a patient whether he really objected to the procedure, and whether he would be willing to undergo it again. If a patient expressed a willingness to undergo another examination, if necessary, or if he stated that he did not have an undue amount of discomfort, it was concluded that the procedure had not been particularly painful. I think that it is going to be possible, however, to utilize intratracheal anesthesia to great advantage in gastroscopy under nitrous oxid.

Dr. G. Reese Satterlee, New York: I was much pleased to-day to see the general trend of speakers toward embryologic influences as a cause of some of these intestinal conditions. I wish to emphasize again the fact that the water-trap stomach is not an enteroptosis. This condition has not received proper consideration or diagnosis. We found in our own experience that many cases were not recognized at all, or were treated for neurasthenia, hypersensitive stomach, ulcer of the stomach, anemia or some other indefinite condition. Dr. Graves has spoken about the gastroptosis cases. We are not discussing the gastroptotic cases. The stomach that we have spoken about is not a gastroptotic stomach, although enteroptosis may coexist, but it is distinctly one due to an embryologic condition with the pyloric arm situated high. We do not want to leave the impression that these cases are all operative. The eighteen operative cases referred to were all followed very carefully with the Roentgen ray and at operation, and in every one of them the lesser curvature was below the umbilicus. Often the pancreas was visible above the lesser curvature.

Dr. Mills brought out one very important point, which also bears out the embryologic theory; he says that there is no normal stomach; that the stomach follows the shape of the body. That is what we find. We think that after a while we are going to be able to diagnose these cases without the Roentgen ray, on account of the long, narrow thorax and the narrow upper part of the abdomen.

One more point, in regard to treatment, showing what can be done in these cases medically. I had one woman with a marked water-trap stomach, a long stomach and a long pyloric arm. She was told to use an abdominal belt, to raise the foot of the bed as high as she could with comfort at night, to take advantage of the night's rest and let the stomach and the colon go up toward their proper place and to lie down on the right side of the body after a meal. I saw her about eight months afterward. She said that she did not have the money to get the belt, but that she had raised the foot of the bed and had rested regularly on her right side after a meal. When she had the symptoms of residue in the stomach which at night gave her pain and nausea, she would turn over on the right side and empty the stomach, and the pain and nausea would cease; thus, by this simple procedure, without any belt, without any operation, she had gained 18 pounds, and was doing well.

Dr. L. T. LeWald, New York: In reference to the question of operation not confirming the findings of the Roentgen-ray examination made one or two days previously, I cannot understand how such a discrepancy could occur, except that I have seen a similar apparent discrepancy when the surgeon operates on a hernia, and the hernia has been reduced by a change of position. The point is simply this: As soon as the patient assumes a horizontal position with the stomach empty it may pass to the upper part of the abdomen, where the surgeon may find it. I have seen instances of this sort in which it could be easily drawn down outside the incision, as far as the symphysis pubis, confirming the Roentgen-ray findings as determined by radiographs taken in the vertical position.

Dr. R. Walter Mills, St. Louis: I am a firm believer in Stiller's views on the subject of the habitus. I believe that its observation constitutes the most important single sign in medicine, considering the universality of its application.

The words enteroptosis, ptosis, atony and dilatation are not used correctly. There should be a perfectly clear and definite understanding with regard to each of these terms, for they mean different conditions.

The findings at operation do not correspond with those found before. One can save himself much difficulty and humiliation by recognizing that this depends chiefly on the fact that owing to general anesthesia, or the opening of the abdomen, tonus is destroyed. I tried to emphasize the point that the stomach is an organ that has this peculiar attribute of tonus, on which under normal conditions in life its form largely depends. The organs of the cadaver, do not possess it; hence, filling the stomach in cadavers gives misleading results; it does not give us the pictures we find in life. That this same tonus is abolished at operation may be suggested by observations which lead us to conclude that the stomach in life must be contracted for one reason, because when empty it has practically no gas content; at operation this is certainly not the case. Each saccule and haustra of the intestines will show its individual gas content, if present, in the plate. I repeat that the most important thing in reaching conclusions is a clarity with regard to such points. At the basis of everything is the ability to individualize and realize that there is no normal type of stomach, but that each normal person has a stomach that fits his body, just as his nose usually fits his face.

THE NEW IMMIGRATION AS IT AFFECTS ORTHOPEDIC SURGERY *

WALLACE BLANCHARD, M.D.
Assistant Clinical Professor in Surgery (Orthopedic), Rush Medical College; Orthopedic Surgeon to The Home for Destitute Crippled Children and to The University Hospital
CHICAGO

A larger number of severe rachitis deformities of the legs have been rapidly corrected by bloodless osteoclasis in Chicago than in any half dozen other cities in the world. The records of the Chicago free orthopedic hospitals and dispensaries show that the new immigrant gives them eight times their normal ratio of rachitic deformities, four times their normal ratio of scoliotic deformities, and twice their normal ratio of tuberculous deformities. Chicago is perhaps the only city in the world having winters of ice and snow that harbors twenty thousand new emigrants from tropical or semitropical countries every year, and very bad rachitic deformities are almost peculiar to the children of recent immigrants from hot to cold climates.

The people from Northern Europe huddle closely. Their children double our tuberculous joint deformities. The German and Russian Jew girls are especially prone to scoliosis. Dr. Peter Roberts, in his book[1] presents a map of the United States, with a line drawn from Atlantic City to Cairo, Ill., and thence to the northwest corner of Minnesota, and says that 80 per cent. of the new immigrants remain north and east of those lines, which mark off only one-sixth the area of the country.

In the year 1911 the highest immigration point was reached with one and a quarter millions. The majority of these people flock to our large cities and settle in the poorer quarters. Their sick and injured fill our free hospitals and dispensaries. Statistics show that in the year 1911 Chicago held eighty-four thousand new immigrants from across the Atlantic Ocean, and it is estimated that one in every five or six comes from a hot country.

The records of three thousand orthopedic cases treated in Chicago hospitals and dispensaries show some interesting points as to the susceptibility of different nationalities to different deformities.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Roberts, Peter: The New Immigration, The Macmillan Co., 1912.

Approximately, one-third of all the cases treated were tuberculous deformities, one-third were rachitic deformities, and about one-third were congenital and acquired other than rachitic, and included the infantile paralysis deformities.

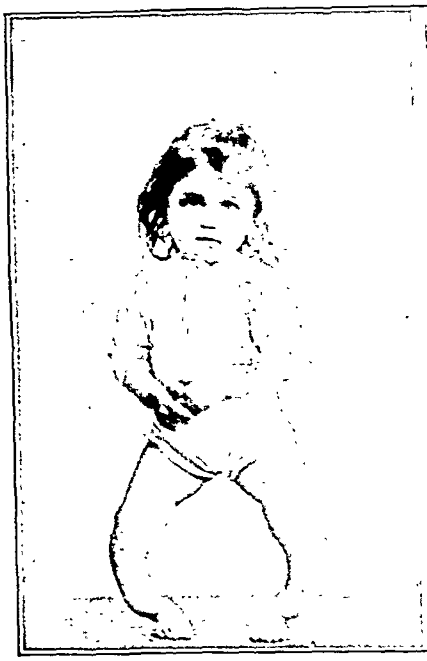


Fig. 1 (Case 1).—Lizzie H., aged 4. Bow-legs. The extreme deformity made locomotion difficult.

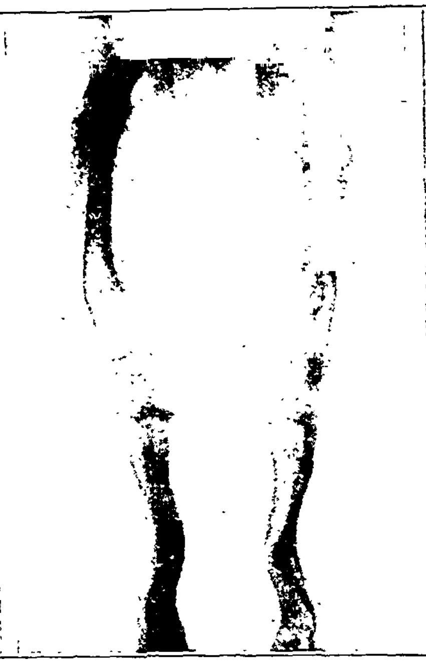


Fig. 2.—Roentgenogram of Case 1 after rapid bloodless osteoclasis and overcorrection at one point only.

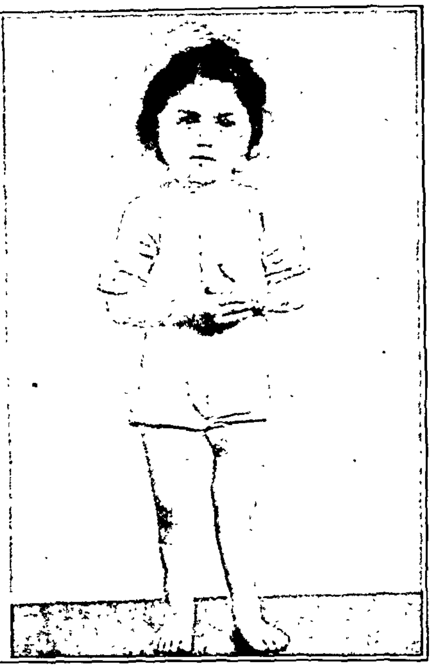


Fig. 3 (Case 1).—Lizzie H., six weeks after osteoclasis, and showing that overcorrection has neutralized the other outbends, producing symmetric legs.

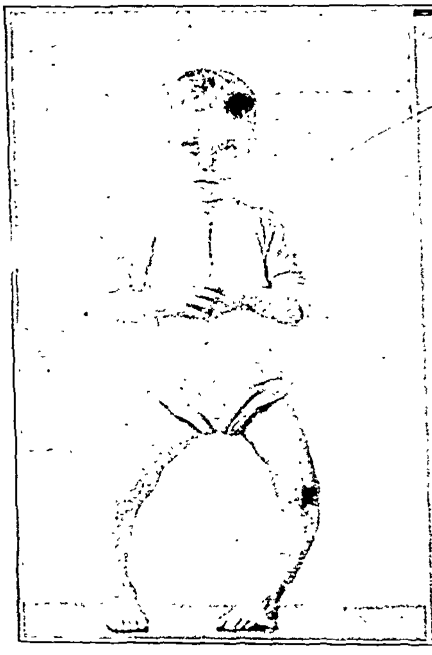


Fig. 4 (Case 2).—Emitt F. Bow-legs, with an inward twist in the shaft of the left tibia and a toeing-in of left foot.

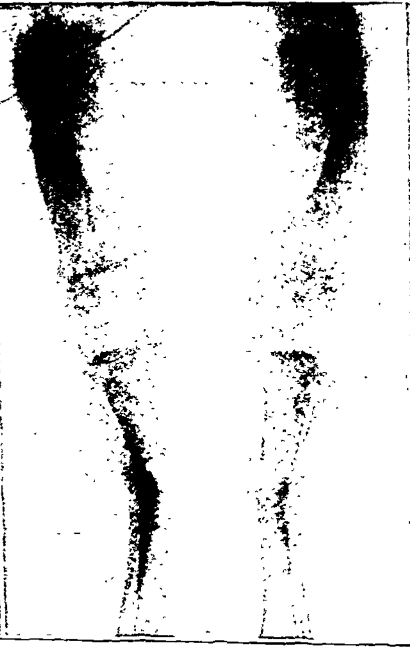


Fig. 5.—Roentgenogram of Case 2 after osteoclasis. Shows overcorrection at apices of deformity bends and rotation out of lower fragment of left tibia.

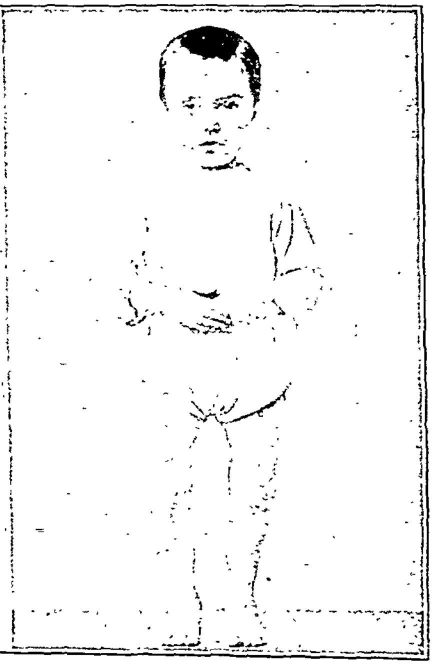


Fig. 6 (Case 2).—Emitt F., six weeks after rapid bloodless osteoclasis, and showing symmetric and useful legs.

My statistical findings may not be exact, but they vary only slightly from those previously presented by Dr. F. C. Test.[2] Of all the patients classed as American, 42 per cent. present tuberculous deformities, while the English, Irish, Scandinavians and Poles show an average of about 48 per cent., and the Germans 35 per cent. Occasional cases of badly twisted rachitic, so-called "grape-vine" legs are seen in the children of colored people from the far South. Notwithstanding the susceptibility of the colored race to pulmonary tuberculosis, only 17 per cent. of joint tuberculosis is shown. The Italians, Greeks, Syrians and other tropical people are almost exempt from tuberculous joint disease, with a showing of only 4 per cent. The Americans lead slightly in congenital deformities, with 12 per cent. The German and Russian Jewish girls develop scoliosis in large numbers. They make up 66 per cent. of all the recorded cases. The most surprising record is given by the Italians, Greeks, Syrians and other tropical people, with 80 per cent. of the rachitic deformities.

---

[2] Test, F. C.: Chicago Med. Recorder, February, 1904.

Why the new immigrant gives us nearly half of our free treated tuberculous joints, two-thirds of our scoliosis and a great majority of our bad rachitic deformities and how the emergency is met will be briefly considered.

The people from northern Europe largely seek work in our clothing and other factories and do piece work at home. These are essentially indoor people, and their children furnish a large share of the cases of tuberculous joint disease. At the Home for Destitute Crippled Children, Chicago, all the acute tuberculous joint cases are treated in an open roof-garden and the convalescent patients are sent to the Country Home, which is largely an open-air structure on a hill, twenty miles from the city. Five years ago the Home had a long line of then incurable chronic sinuses of tuberculous joint disease. My paper[3] on "The Passing of Bismuth Paste," shows that I was the first to report any large number of old sinuses of tuberculous joint disease cured by sinus flooding.[4] The Home cases soon demonstrated the dangers of bismuth and of flooding acute sinuses.

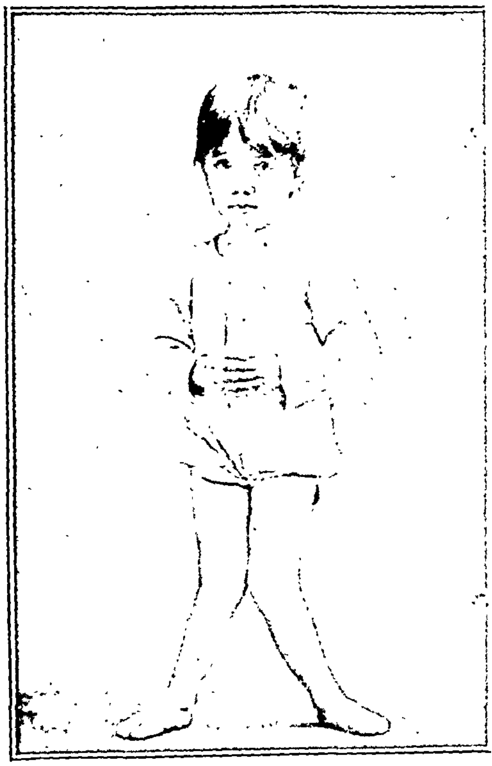


Fig. 7 (Case 3).—Ada S. Knock-knees, so severe as to make locomotion difficult.

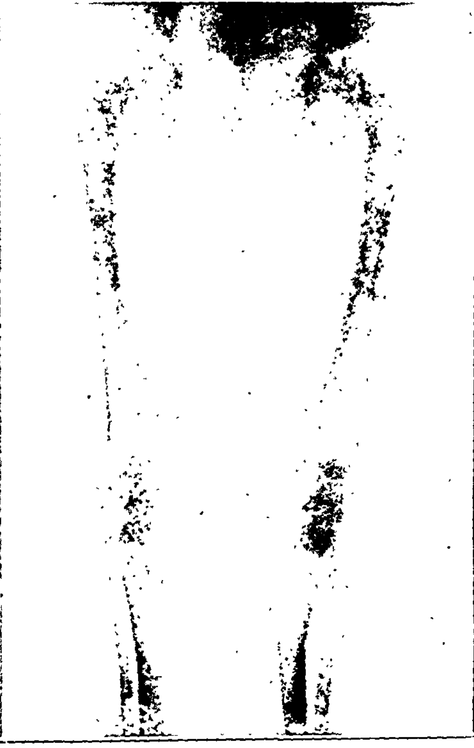


Fig. 8.—Roentgenogram of Case 3 after supracondyloid bloodless osteoclasis and redressment.

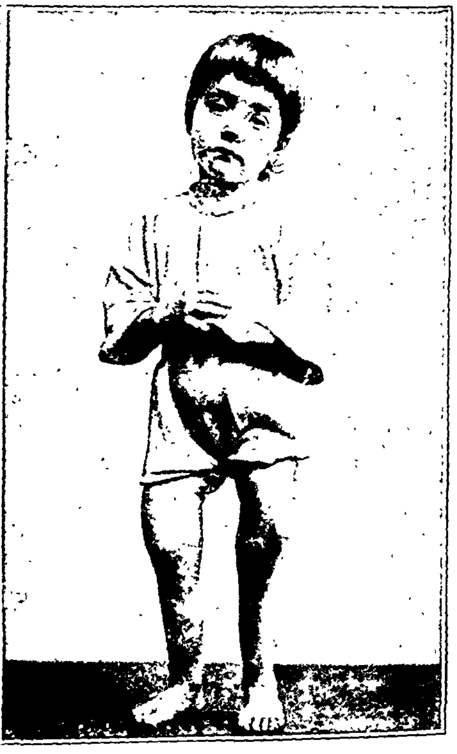


Fig. 9 (Case 3).—Ada S., six weeks after bloodless osteoclasis, showing the knock-knees corrected.

That 66 per cent. of all the cases of scoliosis should be in Jew girls is easily explained. The Jewish mother in a strange land fears to let her young daughter out of sight. The girl sews early and late on shop work, until a vicious posture becomes fixed.

The Abbott treatment for scoliosis has been used for one year and seems to promise comparatively quick and satisfactory results.

A remarkable history is presented by a Syrian colony that was left stranded in Chicago at the close of the World's Fair in 1893. In Palestine they had known nothing of rickets. But a few months of the changed conditions of climate, food and habits had the effect of producing rachitic children. Curiously enough, the children born abroad did not develop rickets. Even babies in arms, but a month old at the time of leaving their old home, escaped deformity. Only the Chicago-born children were attacked, and they suffered so excessively that at one time 80 per cent. had rickets. The rickets was of a severe type, producing bow-legs and knock-knees of great deformity, and also in many cases distortions of the chest, deformed spines, rachitic coxa vara, and curvature of the clavicles and bones of the arms. This condition prevailed for several years. Then, as these people became adapted to the climate and diet of their new home, the rickets began to abate, and in about seven years from its onset it was practically extinct in the colony.

This is a typical rachitic history that is being constantly repeated and amplified.

The unprecedented accumulation of severe rachitic deformities of the legs forced the Chicago orthopedists to get away from the slow and uncertain methods of mechanical devices and repeated osteotomies. So it comes that I am able to report on nearly two thousand bad rachitis bow-legs, knock-knees and anterior bent tibias straightened by rapid osteoclasis; that is, by eight-second bloodless correction in the osteoclast, eight minutes for redressment of the deformity and application of the plaster of Paris, five weeks in plaster, and walking in six weeks on symmetric legs.

The large cities of Europe have nearly stationary inhabitants and none have the conditions that produce bad rachitic deformities. I recently spent six months in the large orthopedic clinics of England, Germany, Austria, Italy and France, and did not see altogether as many bad rachitic deformities as I might have seen at my own clinic in a week.

Professor Adolf Lorenz, of Vienna, strongly favors osteoclasis, though his osteoclast is not to be compared for accuracy with the Grattan. The Grattan osteoclast gives nearly absolute precision in the breaking-point, and the pressure-bar may be moved considerably in either direction from the center without affecting the rule. The term "rapid osteoclasis" is used because osteoclasis that is not rapid is always a failure and brings the osteoclast into disrepute.

---

[3] Blanchard, Wallace: Med. Rec., New York, May 18, 1912.

[4] Blanchard, Wallace: Am. Jour. Orthop. Surg., August, 1908.

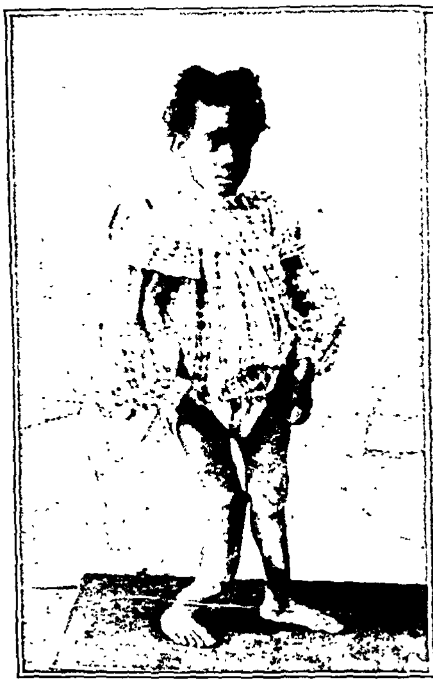


Fig. 10 (Case 5).—Lucy V., with a combination of anterior bent tibias and knock-knees, making "grape-vine legs."

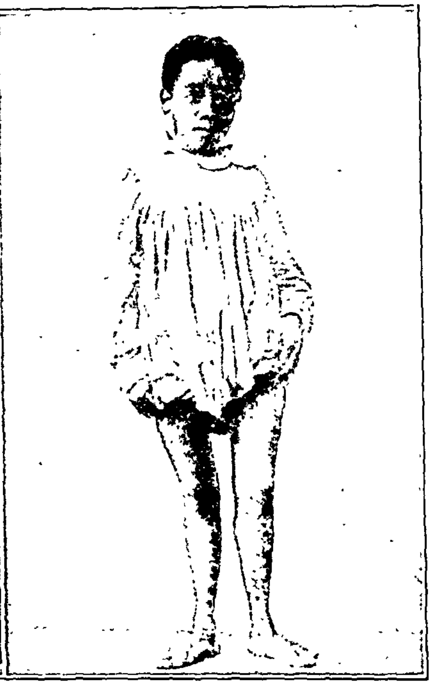


Fig. 11 (Case 5).—Lucy V., after rapid bloodless osteoclasis, showing symmetric legs.

After osteoclasis the bone unites firmly in half the time taken after an osteotomy. Bones bend more or less in the osteoclast before breaking, and the bending contributes toward symmetry of the leg, while osteotomy leaves only an angular correction. I have frequently demonstrated in the correction of bad anterior deformities of the tibia that cuneiform osteotomy on a child 6 to 10 years of age shortens the leg about 1 inch, while osteoclasis of a similar leg lengthens the leg about 1 inch. Two inches difference in height is of great importance to a child already dwarfed by rickets. When the tibia is to be lengthened considerably, the Achilles tendon must be tenotomized as a preliminary step, to allow it to lengthen correspondingly.

In bow-leg with several contributing curves, the apex of the most prominence is usually selected for the operative point and overcorrection is made not only sufficient to correct the curve attacked, but continued sufficiently to neutralize the two minor deformity curves, so that when the plaster of Paris sets it looks like a case of knock-knees. In the same manner, when a supracondyloid osteoclasis has been done for the correction of knock-knees, the legs are held overcorrected and when the plaster has set it looks like bow-legs. An extended experience with rapid osteoclasis has demonstrated better results in six weeks than can be usually obtained in from six months to three years by the older methods.

Osteoclasis should not be done on rachitic bone until it has eburnated. Eburnation represents entirely different characteristics from the slow process of ossification. Normal bones of young children are pliable until ossification, while rachitic bones are friable until eburnation. Eburnated bone is strong, brittle and unyielding. Eburnation may be delayed by disease or insufficient nourishment for weeks or years, but with favoring conditions of fresh air, raw and fatty foods it is quite certain to come, and when it does, it comes suddenly, perhaps in a month, and possibly in a week. Normal bone of a child of 4 years will bend a long way under pressure of the osteoclast before it goes to an osteokampsis or partial fracture, while eburnated bone breaks hard and complete like cast iron. These rules of eburnation cannot be found in either German or English literature, but they are founded on practical experience with several thousand cases.

The mild, non-rachitic bow-legs of small children that are frequently corrected in the course of normal development have nothing in common with the cases reported in this paper.

The emigrant woman has nearly twice as many children as the American-born woman, statistics showing 4.7 against 2.9 per cent. Bad rachitic deformities, tuberculous joints and scoliosis in the young of these new emigrants means a large element of helpless pauperism for the future. Congress has taken steps toward the establishment of a government station in Chicago for the temporary care and protection of immigrants. If the government and the community could be roused to the necessity of caring for the welfare of the immigrant mother for the first year or two in her new home, it would be a great uplift for the future American citizen.

15 East Washington Street.

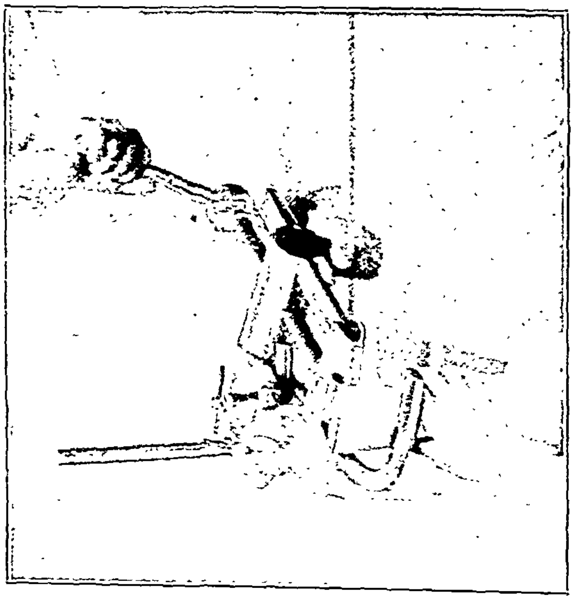


Fig. 12.—The Grattan osteoclast in position to fracture the tibia and fibula, with the pressure bar against the outside of the leg for correction of bow-leg or anterior bent tibia.

ABSTRACT OF DISCUSSION

Dr. Reginald H. Sayre, New York: There is no question that the changes in the environment, mode of life and diet of a race have a great bearing on their nutrition. Some years ago a number of articles appeared in the medical journals stating that rickets was unknown in Japan and that if we were all to live on rice, as the Japanese do, we should not have rickets. I notice now, however, that it is being discovered that the Japanese have rickets. How much of this is to be attributed to the great strain that has been put on that nation as the result of the war with Russia, and the consequent impoverishment and reduction in the diet of its people, may be a subject for consideration. There is no question that since immigration from Europe to this country has increased the number of cases of rickets has vastly increased. In New York it was a rare thing to find a case of rickets when I first began the practice of medicine, while at the present time deformities of all sorts caused by rickets are frequently encountered.

The Italians and negroes furnish the greatest number of cases of this disease. It seems to me that I saw a great many cases of rickets in Bologna. In fact, the orthopedic hospital there is called the Rachitic Institution, showing that rickets has furnished a large quota of the patients. I understood, however, from Dr. Blanchard's paper that there were, apparently, few cases of that kind there when he went through the institution; when I was there they had rickets of all kinds and descriptions.

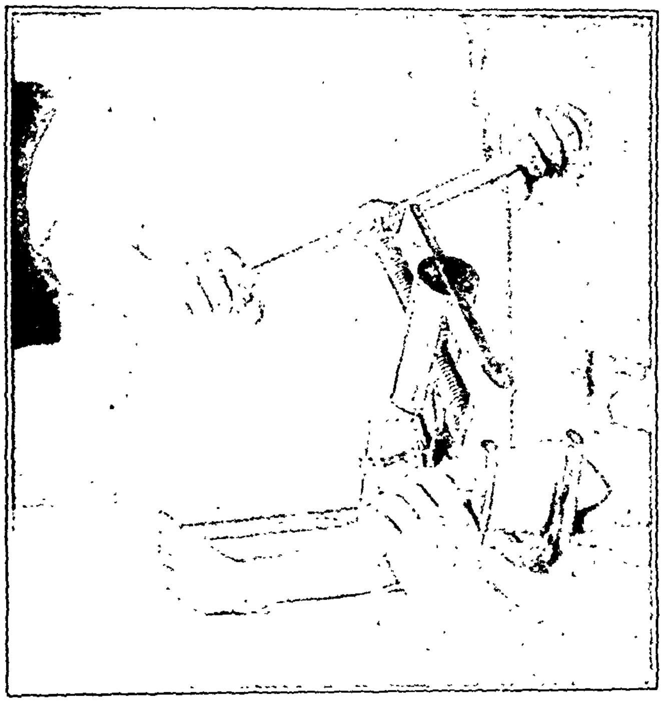


Fig. 13.—The Grattan osteoclast in position to fracture the femur close to the condyles for the correction of knock-knee.

I agree with Dr. Blanchard that the Grattan instrument is a useful osteoclast. I do not understand, however, what he means by "rapid osteoclasis," because I think that, if you exert the force for more than a short time you will damage and lacerate the tissues extensively. All the bone-breaking machines with which I am familiar are based on the principle of a rapidly exerted pressure, rather than a slow, squeezing force, which would certainly do great damage.

In working close to a joint, I believe that you can do better with an osteotome than with an osteoclast, because it is necessary to get a certain amount of leverage in an osteoclast. It seems to me that it is better to make the correction at the point of the deformity rather than at an intermediate point.

Dr. Wallace Blanchard, Chicago: I have spoken of "rapid osteoclasis" in this paper because in my earlier observation of work done with the osteoclast, I found that the pressure was exerted slowly and that the instrument did a great deal of damage simply for that reason. Therefore, I always want to make a point of the fact that eight seconds is the longest time that pressure with an osteoclast should be exerted.

LOCAL AND SPINAL ANESTHESIA IN GYNECOLOGY AND OBSTETRICS *

GEORGE GELLHORN, M.D.
ST. LOUIS

That there is in surgery a field for anesthesias other than by way of the ordinary ether drop-method is so indisputable a premise that I need not waste the few moments at my disposal with argumentation. Suffice it to say that there are no statistics in existence which give a true picture of the alleged harmlessness of the open ether-inhalation narcosis. The exact number of fatalities due to ether will never be known, nor has the rôle of ether in the causation of postoperative complications which endanger life and health of the patients ever been exhaustively considered. Few men have the courage to publish their failures, and the medical journals, as Sellheim remarks, "serve as a medium for recounting accidental success rather than the reverse."

Of the large number of new modes of anesthesia and modifications of old ones, gynecology has been particularly benefited by the two methods which I wish to discuss more in detail—local and spinal anesthesia.

We know both from clinical observations and anatomic researches that the cervix uteri is but meagerly supplied with sensory nerve-endings. Scarifications of the vaginal portions or excisions of small pieces for microscopic examination can usually be done without causing any pain. Under these circumstances it seems to be somewhat out of proportion to employ the heavy artillery of an ether-inhalation narcosis when the injection into the cervix of a small quantity of cocain, novocain, alypin or other drugs will produce an analgesia sufficient for the performance of most of the minor gynecologic operations on the uterus. There is, of course, the objection that the patient retains her consciousness and may therefore suffer a psychic trauma. This objection is largely theoretical. It is undoubtedly a difficult matter to break away from long-established habits. If local and spinal anesthesia—for the same objection has been raised against the latter method and may as well be anticipated here—if, I repeat, local and spinal anesthesia had by chance been discovered earlier than ether narcosis, we may well assume that most of us would look on a state of unconsciousness as a disquieting and questionable innovation.

We must further bear in mind that, though the patient is conscious during local or spinal anesthesia, her sensibilities are not nearly so acute as those of the operator or the audience. Any anesthesia should begin at least a day prior to the operation. Excessively nervous patients should receive bromids, valerian or other sedatives as soon as they enter the hospital. Veronal should be given on the evening preceding the operation to insure sound sleep, and hypodermic injection of morphin-atropin, morphin-scopolamin, or the like, should be administered one-half hour before the time set for operation. Before the patient enters the operating-room, the eyes should be covered with a mask, and the ears filled with cotton saturated with olive-oil. By this preparation the patient's apprehension is dulled, and, if there is no sensation of pain during the operation, there can be no psychic shock. A single trial of these methods will disarm even the most profound skeptic. After all, preparations of

---

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

this kind should precede any anesthesia, whether local or general, and it is to the lasting merit of Crile that he has formulated in so precise and scientific a manner the principles of anoci-association toward which many of us have groped empirically.

LOCAL ANESTHESIA

The technic of local anesthesia is simple. In my first operations a solution of cocain, varying in strength from 0.25 to 0.50 per cent. was used. These cases were reported by Dr. J. S. Wolfermann.[1] Warned, however, against the toxicity of the drug by a case of marked idiosyncrasy, I have, for the past months, used novocain exclusively. This drug, combined with a very small quantity of suprarenin, is put up in tablets which are dissolved in normal saline solution so as to represent a concentration of 1.25 per cent. The total amount of solution needed hardly ever exceeds 10 c.c. A strong metal syringe with fine hypodermic needles, of the kind used in dental work, is also required. Both the solution and the syringe are sterilized by boiling.

For injection, I have frequently adopted the technic of Hertzler,[2] who injects small quantities of his solution around the periphery of the cervix and into the broad ligaments blocking the nerves before, or at their entrance into, the cervix proper. In other cases I have simply thrust the entire length of the hypodermic needle into the substance of the cervix at the four points of the compass.

There are no other departures from the usual procedure. The patient is prepared as for any vaginal operation and is then placed in lithotomy position.

The blanching of the cervix due to the action of the suprarenin, which occurs within a minute or two, indicates that analgesia is accomplished and that the operation may commence. All of the operations done in this manner consisted of, or else started with, a curettage. The cervix is slowly dilated with steel dilators, and I have repeatedly been surprised at the ease with which the internal os yielded to the dilatation. After the desired degree of dilatation is obtained, curettage is performed in approved fashion. Occasionally it has been necessary to inject an additional syringeful of the solution into the cervix a little nearer to the mucosa or to insert a narrow strip of gauze saturated wtih the novocain solution into the uterine cavity for about five minutes in order to render the curettage absolutely painless. In the majority of cases, however, these additional precautions are not needed. After the curettage, trachelorrhaphy or amputation of the cervix as indicated in a given case is performed without causing the slightest degree of pain. In like manner a pinhole os may be incised or the Dudley operation for pathologic anteflexion performed. Wound healing was perfect in all cases observed, for it must be remembered that the small amount of fluid used does not produce an infiltration which might interfere with primary union.

When subjected to thorough excochleation patients with inoperable cancer of the uterus suffer rather severely, as a rule, from the combined shock of the inevitable hemorrhage and the ether. These patients do much better under local anesthesia. Novocain has not been satisfactory in these cases. We still employ in this class of cases a cocain solution of 0.5 per cent. In one case in which a 1 per cent. solution of cocain was used, the patient complained of numbness in one leg lasting twenty-four hours. The excochleation is the first step in the acetone treatment, which in itself is quite painless if properly applied.

In a case of vesicovaginal fistula I obtained complete analgesia by injecting a 2 per cent. novocain solution through the urethra into the bladder. The escaping fluid sufficiently anesthetized the edges of the fistula to permit of a painless operation which resulted in permanent cure.

In obstetric work injection of novocain solution into the cervix is an ideal method in cases of incomplete abortion. Reduced by fever and weakened by hemorrhages, these patients often stand an ether narcosis so badly that the cleansing of the uterus of ovular remnants almost assumes the character of a major operation. I prefer the use of very large curets, both sharp and dull, too large to cause perforation; the necessary degree of dilatation of the cervix, softened, as it is, by pregnancy, is exceedingly easy and absolutely painless after injection of novocain. Since resorting to local anesthesia in these cases of abortion, we have observed a much more rapid convalescence, without having to resort to artificial stimulation either by drugs or proctoclysis.

The injection of novocain has been very helpful in cases of induction of labor by means of bags because the necessary dilatation could be secured without any discomfort. Further experiments will have to show whether or not the painfulness of the first stage of labor can be reduced by this method.

Summarizing, then, I may say that by the injection of novocain into the cervix it is possible to perform a number of minor gynecologic operations without danger and discomfort to the patient, and that in obstetric practice the proper treatment of incomplete abortion has been considerably improved by the use of local anesthesia. This method also offers a promising outlook for the management of cases at or near full term.

SPINAL ANESTHESIA

Spinal anesthesia is, at present, passing through a renaissance in the very country which gave it its birth. Not until sixteen years after Corning of New York had discovered spinal anesthesia, and only after Bier of Berlin had independently discovered the same method and Tuffier of Paris had demonstrated its wide applicability before the International Congress in 1900, was the new method adopted in this country, and our medical literature of twelve years ago reflects the wave of enthusiasm that had spread through most of our large surgical amphitheaters. Disappointments, however, which usually travel in the wake of a novel method used too enthusiastically and indiscriminately during its infancy, brought about an inevitable reaction, and spinal anesthesia was denounced as unreliable and dangerous with the same vehemence with which it had been praised before. The failures and fatalities of Jonnesco, which were so closely watched during his visit to our country, were laid at the door of the method, instead of at the door of that surgeon's personal technic. Then followed silence, and the American literature of the last six or seven years would have been sterile except for the contributions of Morton of San Francisco, who steadfastly clung to his convictions. In the most recent past, however, the papers by Allen,[4] Babcock, Bainbridge and a few others have revived the proposition.

In Germany the majority of the general surgeons rejected spinal anesthesia after Hohmeier and Koenig had collected statistics from 2,400 cases, with a large proportion of deaths and other serious complications. The gynecologists, on the other hand, not only retained the method but also perfected its technic. Sellheim,[5] in 1909, reported one thousand major gynecologic operations under spinal anesthesia with but one death and few disturbances. Kroenig,[6] in 1912, recorded 2,542 spinal anesthesias with no fatality or complication except two asphyxias, which yielded promptly to appropriate treatment. Figures of this kind can no longer be ignored or challenged because of the failures of earlier days. An impartial consideration, therefore, of the value of spinal anesthesia, particularly in our special field, is timely; but we must profit from the past and refrain from bringing discredit on the method by too extreme enthusiasm, and we should carefully weigh its limitations and realize that the success of the new method depends on close attention to even the minutest details of the technic.

---

[1] Wolfermann, S. J.: Local Anesthesia in Minor Gynecology, Jour. Missouri Med. Assn., 1913, ix, 360.

[2] Hertzler, A. E.: Local Anesthesia, monograph, 1913.

[4] Allen, Freeman: Spinal Anesthesia, THE JOURNAL A. M. A., Nov. 23, 1912, p. 1843.

To the younger generation of physicians who have grown up in the use of lumbar puncture the idea of injecting a fluid into the spinal canal is not altogether foreign. The fundamental principle of spinal anesthesia is this: to render analgesic those segments of the spinal cord which supply the innervation of the regions on which we wish to operate. If we inject an anesthetic into the space between the second and third, or the third and fourth, lumbar vertebrae, only the sacral plexus and the lower part of the lumbar plexus are affected. This means for our gynecologic work that, in the main, only the external genitals can be operated on without pain. For laparotomies or for vaginal celiotomies higher spinal segments must be anesthetized. In order to accomplish this object, we must drive the anesthetic within the spinal canal upward from the point of injection. There is a limit to this upward extension, for, if the anesthetic reaches the medulla oblongata, it will paralyze the respiratory center and the patient will cease to breathe. Spinal anesthesia has this danger in common with inhalation narcosis, for in the latter the narcotic agent enters the circulation and may, if pushed too hard, paralyze the centers for the heart and lungs.

We succeed in anesthetizing the spinal segments as required for our purposes and yet avoid affecting the medulla by observing the following precautions:

1. Only a small quantity of a highly diluted anesthetic is used.
2. The specific gravity of the anesthetizing solution must be higher than that of the cerebrospinal fluid so that it may ascend within the latter. This progress is facilitated by a slight upward current in the cerebrospinal fluid which was first demonstrated experimentally by Quincke[7] in 1872.
3. To prevent too rapid an ascent, the fluid must be injected very slowly.
4. For the same reason the patient should remain motionless in sitting posture for at least three minutes after the injection, because Straub and Gauss[8] have shown that within this period of time the greater part of the anesthetic becomes chemically bound to the substance of the spinal cord. Such an affinity between nerve substance and cocain was first observed by Mosso and Franck[9] in 1892.
5. The remainder of the anesthetic is permitted to reach higher parts of the spinal cord by changing the sitting position of the patient into the dorsal position and slowly raising the lower end of the operating-table. If this entire change is made too abruptly, the current within the cerebrospinal fluid will be increased and the anesthetizing solution may be precipitated toward the medulla. Failure to observe this caution accounts for many of the collapses which occurred so often during the experimental stage of the new method.

Some of these precautions may be merely theoretical, but the fact remains that, by observing them, the disastrous complications of former days have practically disappeared in the work of competent observers, and one can only agree with Kroenig when he demands that reports of complications due to spinal anesthesia must hereafter contain all details of the technic employed before they can be admitted to serious consideration.

After these more general remarks, the various steps of the procedure, as I practice it, may be enumerated.

At the appointed hour the patient is placed on the operating-table in a sitting posture bent forward as much as possible, and the lower part of the back is painted with iodin solution. An imaginary line connecting the crests of the iliac cones crosses the fourth spinous process which enables us to quickly locate the desired spot for injection. Many authors prefer the space between the second and third vertebrae; I have usually selected the space between the third and fourth. The spinal cord, as a rule, terminates at the upper end of the second lumbar vertebra; it may, however, extend lower down, usually in children, occasionally in women; and in such an anomaly an injury to the cord itself seems possible. Below the termination of the cord the nerve trunks, as is well known, are arranged in two large strands with a small intervening open space filled with spinal fluid. It is in this free space that we wish to inject the anesthetic. The needle is then inserted immediately below the spinous process and exactly in the median line. The injection through the skin and the strong interspinous ligament is slightly painful, and the patient must be warned to keep her position lest the needle be broken by the pressure of the spinous process during a sudden jerk. Then the needle is pushed in an inward and at the same time slightly upward direction until the arachnoidal sac is entered, which is evidenced by the escape of colorless fluid. Only a few drops of this fluid are permitted to escape. The syringe previously filled with the anesthetizing solution is at once connected with the needle and the solution diluted in the syringe by drawing the cerebrospinal fluid into it. After a preliminary trial with stovain, I now use exclusively 2 c.c. of a 10 per cent. novocain solution which contains 5 drops of a 1:1,000 solution of suprarenin.† The diluted solution, measuring in all 6 or 8 c.c., is then slowly injected into the spinal canal, the needle withdrawn, and the site of injection quickly covered with gauze or cotton and sealed with collodion. The patient remains bent forward three minutes more and is then slowly laid down in the dorsal position. The final disinfection of the abdomen, or in the case of vaginal operation, of the vulva and vagina, is attended to immediately, the lower end of the table is raised slightly and the operation can begin at once.

The way in which spinal anesthesia affects the patient follows a certain order. She first notices that the feet feel heavy and "sleepy." The sense of pain becomes abolished first while the sense of touch as yet persists; then this sense, too, disappears. Gradually the recognition of differences of temperature, tendon reflexes and finally the mobility of the legs is lost. At last the peritoneum loses its sensibility. The patients breathe quietly and regularly and the intestines are not pressed out of the wound. The abdominal walls relax completely so that abdominal retractors can be used without difficulty.

---

[5] Sellheim, H.: History, Anatomy and Technic of Spinal Anesthesia, Med. Klin., 1910, vi.

[6] Kroenig: In Doederlein and Kroenig's Operative Gynaekologie, Leipzig, 1912.

[7] Quincke: Quoted from Gerstenberg, Ztschr. f. Gynäk., 1907, lix, 180.

[8] Straub and Gauss: Quoted from Doederlein and Kroenig's Operative Gynaekologie, ed. 3, Leipzig, 1912.

[9] Mosso and Franck: Arch. de physiol., 1892, p. 562.

† I am now injecting, with equally good results, 3 c.c. of a 5 per cent. solution of novocain with suprarenin.

The analgesia lasts, as a rule, from one to one and one-half hours; in some of my cases it has lasted as long as two and one-half hours. The sensibility of the peritoneum is the first to return, the sensibilities of the other structures following in quick succession. The analgesia lasts longest in the region of the external genitals.

Since my report of the first forty operations performed by me in the manner described I have done twenty-three additional operations under spinal anesthesia. In two other cases spinal anesthesia was attempted but not carried out, in one because only blood was drawn, in the other because of too small a quantity of spinal fluid to dilute the novocain solution.

LAPAROTOMIES

14 panhysterectomies for inflammatory disease of the adnexa (pus-tubes; tubo-ovarian abscess).
10 hysterectomies for fibroids.
2 hysterectomies for fibroids and pyosalpinx.
2 radical operations for uterine cancer.
1 operation for ovarian cancer.
1 operation for postoperative hernia.
1 operation for ectopic pregnancy (ruptured).
2 operations for fixed retroflexions with extensive adhesions.
1 operation for fixed retroflexion, tubo-ovarian cysts, hernia, and appendicitis.
1 operation for enormous hydrosalpinx and appendix.
2 operations for appendicitis.

VAGINAL OPERATIONS

5 radical hysterectomies for uterine cancer.
3 hysterectomies for fibroids.
1 vaginal cesarean section for exophthalmic goiter in pregnancy.
1 operation for complete tear in patient with exophthalmic goiter.
1 hysterectomy for prolapse.
1 Watkins-Schauta operation for cystocele.
1 Vineberg operation for retroflexion and cystocele.
1 hysterectomy for fixed retroflexion and tumor in parametrium.

In several of the vaginal cases plastic operations on cervix or perineum were done in addition. The age of the patients ranged between 17 and 64 years. Of these sixty-three operations, analgesia was altogether insufficient in one case, that of a complete tear in a woman with exophthalmic goiter. This happened to be the first case in which I attempted to operate under spinal anesthesia. I used stovain for the first (and last) time, and the solution was apparently too weak. Two years later I performed vaginal cesarean section on the same patient. This time I injected novocain and had a perfect result.

In three other cases the analgesia was imperfect.

In six of the remaining forty-seven cases a few whiffs of ether had to be given; in two cases in the beginning because of great nervous excitement of the patient; in the other four at the end of long and severe operations when the suturing of the abdominal walls was under way.

In all other operations, forty-one in number, there was a complete absence of pain. Now and then I had an assistant give a few drops of alcohol on a mask for the sake of suggestion when the patient did not fall asleep at once, but for the most part the patients were perfectly comfortable and were roused only by questions put to them in a loud voice. They paid little or no attention to any remarks made by the operator or assistants and it is altogether a mistake to speak in whispers or to maintain an unbroken silence. "The best plan," says Allen, "is to act as naturally as possible, assuming that the patient is all right and not disturbing her with questions as to her sensations or lack of them. If the patient is nervous or in a communicative mood it is a good plan to detail some agreeable nurse or assistant to sit by her and act as mental anesthetist."

The symptoms which may arise during anesthesia require particular consideration. The most dreaded complication is that of collapse, which figured so prominently in the earlier publications on spinal anesthesia. I have observed a collapse of this kind in one of my earliest cases, that of a stout and asthmatic woman with nephritis and a flabby heart in whom vaginal hysterectomy was to be performed. In this case, a typical collapse occurred when the patient was brought from the sitting into the dorsal position even before the operation had commenced. An injection of strychnin and the introduction of oxygen quickly revived her, and the operation was successfully and painlessly carried out. In another case, that of a poorly nourished prostitute whose vitality was greatly lowered, air-hunger occurred twice in the course of a tedious operation of almost two hours' duration, but it subsided without any treatment.

Vomiting took place in a large number of cases, usually when the peritoneum was incised. This vomiting varied from simple retching to emesis of copious quantities of fluid, but never persisted.

The behavior of patients during an undisturbed spinal anesthesia differs favorably from that of patients operated on under ether and gives the operator a pleasant feeling of security. After operation, this difference is even more marked. All postoperative phenomena occur, as a rule, in mitigated form, and the resisting power of the organism is not reduced by any late effects that might occur after an inhalation narcosis. The wound pain alone is not materially lessened when once the effect of spinal anesthesia has worn off. It is significant that nurses have repeatedly assured me that these patients are more easily taken care of.

The most annoying sequel to spinal anesthesia used to be an intense and intractable headache lasting for hours or days. I have observed this complication but once, in the case of vaginal hysterectomy for multiple fibroids previously referred to when spinal anesthesia was insufficient and a good deal of ether had to be added. It existed from the third to the ninth day after operation, but finally yielded to hot packs. The comparative freedom from these distressing headaches in my cases may be explained in this way: (1) The instruments for injection are boiled in plain water instead of soda solution; (2) the cerebrospinal fluid is not permitted to escape so that the pressure in the spinal canal is not lowered. Conversely, patients from whom from 6 to 10 c.c. of fluid are taken by lumbar puncture for examination always suffer from severe headaches.

Backache lasting one or two days was noted in five of my cases. In two instances the bed-side notes recorded numbness in the legs, and one patient complained of pain in the feet on the day following the operation. Usually, however, free mobility of the legs is regained within an hour or two after operation.

All these disturbances become insignificant when compared with the great advantages of spinal anesthesia. If we consider the 2,542 cases of Kroenig without a fatality, the one thousand operations of Sellheim with but one death and numerous other large series of cases in literature with an equally low mortality, we may be tempted to conclude that spinal anesthesia should be the method of choice and in practically all major gynecologic operations. As a matter of fact, Doederlein and Kroenig draw just this conclusion. They regard as the chief advantage of spinal anesthesia over inhalation narcosis the fact that in the former we have to deal in the main with a local anesthesia in which the greater part of the poison is deposited around the site of the injection and is thus rendered harmless, while in every inhalation narcosis the poison enters the circulation and produces undesirable toxic effects on the other organs, particularly the heart and lungs. They emphasize further that postoperative cardiac disturbances and pneumonies occur far less frequently after spinal anesthesia than after inhalation narcosis. Patients with bronchial troubles or heart lesions bear a spinal anesthesia better than inhalation narcosis. The latter, it is true, is free from postoperative headaches, but since these do not materially alter the general condition of the patients and do not endanger life, they cannot be considered as an absolute contra-indication to the use of spinal anesthesia. Kyphoscoliosis, on the other hand, and other anomalies of the spinal column contra-indicate spinal anesthesia.

These authors, then, prefer spinal anesthesia over inhalation narcosis in all operations with a high mortality, such as operations for cancer and fibroid; but since there is a certain degree of risk in any laparotomy, they use spinal anesthesia in all abdominal operations in preference to inhalation narcosis.

The list of contra-indications as formulated by other authors, who, in the main, concur with Kroenig and Doederlein, also includes fever of unknown origin, sepsis, lesions of the central nervous system, syphilis, pressure-points along the spinous processes which might indicate abnormal conditions within the arachnoidal sac, such as adhesions or lack of cerebrospinal fluid, arteriosclerosis, hysteria, great nervousness and prejudice against the method.

From my own experience, limited as it is, I feel that syphilis need not exclude the use of spinal anesthesia. A large percentage of the patients operated on in the City Hospital and the Barnard Free Skin and Cancer Hospital presented strongly positive Wassermann reactions, yet had no subsequent disturbance attributable to the injection. The amount of cerebrospinal fluid was, however, so small in three of them that in two instances the attempt to inject the novocain solution was given up. It would be interesting to investigate whether or not syphilis reduces the amount of spinal fluid.

I can also assert that psychoses do not necessarily militate against the success of spinal anesthesia, for in two maniacal patients, inmates of the City Insane Asylum, the result of spinal anesthesia was perfect.

With these contra-indications in mind I have employed spinal anesthesia in all cases in which distinct cardiac or pulmonary lesions rendered inhalation narcosis plainly inadvisable. I have furthermore made use of it in patients whose general condition was so weakened either by sickness or age as to render any operation more or less hazardous and finally in complicated conditions in which a severe and tedious operation could be foreseen. These guiding principles find their expression in the list of operations given before, which comprises but few uncomplicated cases. It can thus be seen that I have put spinal anesthesia to a particularly severe test. Furthermore, the fact that only one-sixth of all the patients operated on were subjected to spinal anesthesia shows that the method has not been used indiscriminately.

The time is not yet ripe to form a definite estimate of a method that has been in practical use for less than thirteen years. Spinal anesthesia is not applicable in all cases, but neither is there any other method of anesthesia that would be universal. It would, indeed, be contrary to all our principles of individualization in medicine if we were to depend on any one mode of subjecting our patients to operation. It is true that in a certain small percentage spinal injection fails to produce the necessary analgesia. Whether this is due to the nature of the anesthetic used, faults of technic or to factors still unknown, the future will show. It may be possible to still further diminish this small percentage. There are also a number of undesirable by-effects which have steadily decreased with growing experience and will perhaps be reduced later to a negligible minimum. All these shortcomings of the method have been dwelt on in the foregoing pages in order to make an accurate presentation of the problem before us. On the other hand, spinal anesthesia presents many undeniable advantages over inhalation narcosis and, taken all in all, seems to offer an element of safety which would add greatly to the achievements of modern surgery, particularly in the field of gynecology. In view, then, of all that has been said of both local and spinal anesthesia, it is permissible to contend that he who rejects these two methods a priori deprives himself and his patients of valuable means to render his operative endeavors still more efficacious.

Metropolitan Building.

SPINAL ANESTHESIA IN GYNECOLOGY, OBSTETRICS AND ABDOMINAL SURGERY *

W. WAYNE BABCOCK, M.D.
Surgeon to the Samaritan Hospital
PHILADELPHIA

In 1885 Dr. J. Leonard Corning[1] of New York published the first article on spinal anesthesia. Not considering it feasible to introduce the solution within the arachnoid, Dr. Corning injected a solution of cocain between the spinous processes in the lower dorsal region of a man and a dog. Although in both instances there were evidences of anesthesia, and although Dr. Corning considered the feasibility of operating under this method, nearly fifteen years elapsed before August Bier at Bonn, Germany, first produced intradural anesthesia. Bier had the experiment made on himself and later injected his assistant, an example of medical heroism that recalls Sir James Y. Simpson's demonstration of the anesthetic value of chloroform. Despite the warning from Bier, the intradural injection was promptly tried in many of the clinics of the world but soon was abandoned from imperfections in the technic and disadvantages attending the use of cocain. In 1902, with the discovery of a series of synthetic alkaloid-like bodies having local analgesic properties, the method was revived and came into larger use. Of these substances

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Corning, Leonard J.: New York Med. Journal, Oct. 3, 1885.

stovain[2], tropacocain and novocain are at present chiefly employed. Cocain has been discarded.

I have employed spinal anesthesia at the Samaritan Hospital since 1904, and our experience is based on over five thousand operations performed under spinal anesthesia by my associates and myself. Except where indicated, I shall here refer only to a personal experience of something over three thousand operations on the abdomen, pelvis and adjacent parts. As a proportion of the patients were subjected to repeated or multiple operations, the number of patients is less than the number of operations. With a similar technic, and with the position of operator and patient reversed, I myself would have accepted spinal anesthesia; and the method is one that has repeatedly been selected by my medical associates, assistants and nurses for operations on themselves or members of their families. This must be my excuse for a rather extensive employment of spinal anesthesia. Cocain, alypin and eucain lactate were used in a small series of cases, and tropacocain and novocain several hundred times each, but stovain has been chiefly employed. The action of a sufficient dose of each of these substances is so similar that a general description will suffice.

PHYSIOLOGIC ACTION

When a solution of a local anesthetic is introduced within the dura it promptly falls or ascends according as its specific gravity is greater or less than that of the cerebrospinal fluid. Cerebrospinal fluid has perhaps the most constant specific gravity of any of the liquids of the body, and in a study of over a hundred specimens taken from patients of different ages and under different conditions we found that the specific gravity almost invariably ranges between 1.0055 and 1.0065. As the slightest variation in specific gravity causes the substance introduced into the cerebrospinal fluid to rise or fall it is not practicable to prepare anesthetic solutions that will remain stationary when introduced within the dura. It is desirable, therefore, to use solutions either distinctly heavier or lighter than that of the cerebrospinal fluid. As the fluid rises or falls it comes in contact with the motor and sensory nerve roots and arrests their power of conductivity. There follow anesthesia, motor paralysis and sympathetic paralysis in the segments affected. The cord proper surrounded by the pia is only superficially influenced, and the columns within the cord may continue to functionate under spinal anesthesia. The autonomic system is practically uninfluenced. Immediately after the injection the patient usually notices a sense of paresthesia in the feet followed in a very few seconds by complete loss of sensation and almost complete loss of motion. The small muscles of the toes and the ileopsoas muscle group succumb last to the influence. As would be expected, the area of epicritic (pain) loss is much greater than the area of protopathic (touch) loss. If the analgesia is not deep the patient may therefore feel the knife although the incision is not painful. The motor paralysis and loss of motor sense are secondary to the loss of sensation and indicate the full intensity of the action of the drug, the anterior nerve roots being less sensitive to the action of the anesthetic than the posterior roots. Analgesia may be present without complete muscular relaxation, especially if the solution be weak, or a weaker drug like novocain used.

With a sufficient dosage the patient is entirely oblivious of the movement or position of the affected part. The action begins a few seconds after the injection, reaches intensity in fifteen or twenty minutes and then gradually disappears, the total duration of the analgesia varying directly with the dosage, being from fifteen to ninety minutes.

Abdomen.—Under spinal anesthesia the abdominal walls become relaxed, the abdomen more scaphoid. Abdominal breathing is largely abolished. The anal sphincters relax, and the gaseous and liquid content of the large intestine escapes. The intestinal tube contracts and shows active peristalsis. Except in certain forms of mechanical obstruction, ileus is usually promptly relieved by the injection. The influence on the intestinal tract may be explained largely by the release from intestinal inhibition. The vasomotor sympathetic nerves, the source of intestinal inhibition, are blocked, and the stimulating autonomic influence from the vagi and the stimulus from the ganglia of Auerbach are unopposed.

Operative manipulations within the abdomen are greatly facilitated by the relaxed parietes and contracted intestine, and the expulsion of gas and fecal matter before the patient leaves the operating-table is especially helpful in the forms of ileus. The stomach in some degree shares in the peristaltic stimulation. If the upper dorsal segments are involved, nausea is often noticed, due probably to cerebral anemia. The patient may be unable to vomit with the head raised, from paralysis of the abdominal walls. If present, the nausea is usually very transient. It may also result from mental impressions.

Urinary System.—While we have not made careful estimations of the urinary excretion under spinal anesthesia, it is evidently distinctly diminished as a result of lowered blood-pressure. The ureters show periodic peristaltic waves that are increased in frequency by mechanical stimulation. We have not observed incontinence of urine under spinal anesthesia. A slight or moderate degree of priapism is only occasionally observed, evidence that a marked influence on the lumbar cord is inconstant.

Circulation.—Spinal anesthesia is characterized by a fall in the blood-pressure and a slowing of the pulse that are proportionate to the height and intensity of the anesthesia. With involvement of the upper dorsal nerve roots the pulse may drop to 40 or 30 and the blood-pressure to zero at the wrists, while an involvement of only the lower spinal segments may produce only a slight reduction in the pulse-rate and blood-pressure. The action on the circulation begins soon after the motor paralysis reaches its acme or in about fifteen or twenty minutes, and gradually passes off. The influence on the circulation may be explained by the following factors:

1. The pressor influences to the cord are interrupted and there is a vasomotor palsy in the involved segments.
2. The limitation of respiratory movements reduces the normal aspirating influence on the venae cavae, and the right auricle fills slowly and therefore the other cavities of the heart fill slowly.
3. The inhibitory influence of the vagi on the heart continues and is largely unopposed.
4. The powerful normal stimulus to vigorous heart action—the *vis a fronte,* is largely lost with the fall in blood-pressure.

A blood-pressure of zero at the wrist may be harmless if the respirations are well maintained. The hypotonus. however, favors cardiac arrest in certain forms of myocardial disease, as well as in thoracotomy and other operations causing sudden changes in intrathoracic tension. The depression of the heart varies directly as the height of motor paralysis. In aneurysm, threatened decompensation in valvular disease, in the excessive tension of eclampsia, in labor, nephritis and advanced arteriosclerosis the vasorelaxation of spinal anesthesia may be protective. Hemorrhage from divided vessels and from the open uterine sinuses is greatly reduced under spinal anesthesia, while there is no increased tendency to reactionary hemorrhage. No other anesthetic produces such a complete vasomotor relaxation, and for this reason spinal anesthesia should be used with care or avoided in conditions of marked hypotension, while it is indicated in forms of hypertension. During severe shock, spinal anesthesia should not be employed. It accentuates preexisting shock although it prevents to a remarkable degree the production of shock by operative measures carried out under its influence. With most other anesthetics the shock of a prolonged operation is reinforced by the progressive toxemia of the anesthetic. With spinal anesthesia the emergence of the nerve roots from the anesthesia as the operation proceeds usually results in the patient's leaving the operating-table in better condition than he was during the early stages of the operation.

---

[2] Stovain is named in honor of its discoverer, Fourneau, the French selecting as more euphonious the English translation of *fourneau*—a stove.

The best antidote for the fall of blood-pressure is the intravenous injection of physiologic salt solution containing epinephrin. From 2 to 10 minims of epinephrin should be added to each funnel (6 ounces) of the saline solution, the flow being interrupted as soon as the pulse returns to the wrist. The amount of epinephrin to be used depends on the effect produced; in some instances 2 minims is excessive: in others 70 minims are hardly sufficient. For patients in extremis it is wise to fasten the transfusion needle in a vein before starting the operation as complete cessation of the circulation for over seven minutes seems to be incompatible with life. In certain instances cardiac massage, best carried out through the diaphragm, must also be used.

Respiration.—The respiratory movements diminish in amplitude according to the height of paralysis of the respiratory muscles. With paralysis of the lower dorsal segments the respirations become diaphragmatic in type but are without the coordinate movements of the abdominal walls. As the thoracic walls relax the patient sometimes complains of a sense of weight or oppression on the chest. The skin, although pale is usually dry and of fair color. If, however, the fourth cervical segments supplying the phrenics be influenced, although the patient may continue to make ineffectual respiratory movements with the accessory respiratory muscles of the neck, asphyxia rapidly develops and the patient will die unless efficient efforts at artificial respiration be instituted. If a solution of stovain be applied to the floor of the fourth ventricle of a dog the respirations are almost instantly arrested but the animal may eventually recover, provided artificial respiratory movements be continued until the centers emerge from the influence of the drug. A similar condition occurs in the human being in anesthesia of the cervical segments, and one should not hesitate to continue artificial respiration for forty minutes or even longer. The respirations under spinal anesthesia are usually slow, and rather shallow. Their small amplitude is favorable to the performance of abdominal operations. Cyanosis is ominous. Respiratory movements are best gaged by a wisp of cotton fastened to the tip of the patient's nose, and this is the best indicator of the efficiency of artificial respiratory measures. If artificial respiration is necessary it can conveniently be carried out by rhythmic compression of the thorax or by forced artificial respiration. A simple emergency method of forced artificial respiration is by intermittently blowing through a soft rubber hose applied over a tracheotomy tube. Resuscitation by the intratracheal insufflation of Meltzer is less convenient and in my experience, less positive. It is absolutely essential that the upper respiratory passages are kept open.

Uterus.—Uterine contractions continue under the anesthetic, but being without the normal aid of the voluntary expulsive forces, they are, as a rule, inefficient even when supplemented by the associated relaxation of the pelvic outlet. The blood-pressure in the uterine sinuses is greatly reduced. Hemorrhage during delivery or during curettment for miscarriage is distinctly less than that seen under chloroform or ether anesthesia. When emptied, the uterus contracts promptly, and I know of no instance of secondary hemorrhage after delivery.

Skin.—Except with the relaxation of high spinal anesthesia, the surface of the body is pale or of normal color, and dry. The suffusion of the skin, drenching sweats and heat radiation of ether are absent.

It is evident that spinal anesthesia has a different physiologic action than that of any other anesthetic. It is of chief value when its application is based on its peculiar physiologic action and when it is used in conditions that render the employment of other anesthetics dangerous.

PERSONAL EXPERIENCE OF THE AUTHOR

In detail, my personal experience is as follows:

TABLE 1.—OPERATIONS ON THE UPPER ABDOMEN

	No. Cases
Stomach:	
Complete gastrectomy for cancer	3
Partial gastrectomy for cancer	10
Resection for ulcer	7
Occlusion perforated ulcer	18
Gastrostomy	6
Gastro-enterostomy	19
Gastroplication or gastrorrhaphy	14
Exploration for cancer, and miscellaneous	51
	128
Liver, Gall-Bladder and Ducts:	
Cholecystectomy	49
Cholecystostomy	68
Choledochotomy, choledochoduodenostomy	6
Operations on liver for rupture, abscess, tumor hydatid cyst and ptosis	31
Miscellaneous	19
	173
Acute Pancreatitis with Fat Necrosis:	
Cholecystostomy and drainage	5
Spleen:	
Wound	2
Splenectomy for acute leukemia (13½ pounds), massive infarction, Banti's disease	5
Omentum and Mesentery:	
Resection, excision of lymph-nodes, chylous cyst, etc.	19
Total operations on the upper abdomen	332

It is more difficult to produce efficient spinal anesthesia in the upper abdominal segments without depression and the analgesia is associated with certain disadvantages not present when only the lower abdominal segments are involved. The anesthesia usually involves the lower thorax and often reaches the level of the third or fourth rib. This interferes in part with the respiratory movements and increases the fall in blood-pressure, and if sufficiently high may cause nausea and symptoms of shock; while if the analgesia be low, traction on the stomach and manipulations near the diaphragm produce discomfort and nausea. It is desirable in many of these patients, therefore, to produce unconsciousness by the preliminary injection of narcotics, but in the weak and debilitated the use of narcotics increases the danger of respiratory failure. The conjoint use of a small quantity of ether at times is less objectionable. In about 80 per cent. of my cases narcotics have been used and in perhaps 5 or 10 per cent. the action of spinal anesthesia has been supplemented on the operating-table by the use of ether. Usually from ½ to 2 ounces of ether will be sufficient for a fairly prolonged operation.

TABLE 2.—OPERATIONS ON THE LOWER ABDOMEN

	No. Cases
Appendix:	
Catarrhal, chronic or incidental	610
Gangrenous, perforative with abscess or peritonitis	215
Appendicostomy	4
	829
Intestine:	
Resection (from 3 inches to 16½ feet)	21
Suture or occlusion	17
Occlusion of perforated typhoid ulcer	14
Miscellaneous, including colostomy, fecal fistulas, adhesions, bands, kinks, diverticuli, ileus, abscess, separation of adhesions, etc.	77
	129
Herniotomies and Operations on Abdominal Wall:	
Inguinal	365
Femoral	15
Strangulated	29
Incisural, umbilical, ventral	57
Lipectomies (from ½ to 14½ pounds)	30
Miscellaneous operations	6
	502
Total operations on the lower abdomen	1,460

Spinal anesthesia has its chief value in operations involving the segments of the lower abdomen and pelvis. In these regions it is not difficult to produce relatively safe and complete analgesia with muscular relaxation. Particularly is it valuable in acute peritoneal infections as from the appendix. In these patients, beyond the possible passage of a stomach-tube, and the sterilization of the skin, no preoperative preparation is required. If meteorism or inflammatory ileus exists the intestinal tract is usually emptied on the operating-table and the patient returns to bed with a scaphoid abdomen. The muscular relaxation and collapse of the distended bowel enable the surgeon to work with greater facility and less peritoneal exposure, handling or traumatism than under conventional methods of anesthesia. A shorter incision may be made and the anesthetic does not add to the patient's intoxication or interfere with normal elimination.

With one exception, during the past nine years, I have selected spinal anesthesia for all abdominal operations on the toxic, septic or desperately sick, and I have withheld operation only from those who were admitted to the hospital in an unquestioned dying condition. In a few instances I have even given spinal anesthesia to the moribund. One such patient, a man aged about 70, with a perforated typhoid ulcer of twenty-four hours' duration, was brought to the hospital cold, cyanotic and nearly pulseless, and died during the operation. Although in other hopeless cases of peritonitis the patients have withstood the depression of spinal anesthesia, and although the operations have taught valuable but terrible lessons to attending physicians and students, I shall not dispute those who consider it better to permit these unfortunate patients to die under the Ochsner treatment. The lowest mortality I have obtained in operating on the appendix, 1.8 per cent., in a series of 220 consecutive and unselected operations performed promptly after admission to the hospital, irrespective of the degree or duration of any associated peritonitis, has been under spinal anesthesia.

Three patients with apparent mechanical intestinal obstruction of some days' duration, that had resisted many forms of treatment, were relieved by spinal anesthesia alone while the patients were on the operating-table and before the incision was made.

I have had little trouble from postoperative tympany, and recall no operation required for postoperative ileus, and it is evident that postoperative intestinal disturbances are not increased by the use of spinal anesthesia.

TABLE 3.—PELVIC AND VAGINAL OPERATIONS

Abdominal Operations on Pelvic Organs:	No. Cases
Hysterectomy and hysteromyomectomy	61
Myomectomy	8
Ovariotomy	7
Operations on tubes and ovaries	148
Suspension operations	54
Miscellaneous	29
Total	307
Vaginal Operations involving the Peritoneal Cavity:	
Vaginal, hysterectomy	105
Vaginal myomectomy	1
Vaginal ovariotomy	7
Vaginal appendectomy	7
Vaginal resection or removal of tubes and ovaries	57
Vaginal anterorrhaphy	3
Culdesac drainage	57
Miscellaneous	17
Total	254

As with operations on the lower abdomen, operations on the pelvic organs are very conveniently carried out under spinal anesthesias.

Spinal anesthesia should be employed with caution in the neurotic, especially those with pelvic symptoms. Frequently they will attribute all postoperative headaches, backaches or pain in the extremities to the intradural injection. At times, under the advice of solicitous friends or unwise medical advisers they become convinced that a hopeless spinal degeneration is developing. It is fortunate if the patients come under the care of a trained neurologist.

TABLE 4.—OPERATIONS ON THE KIDNEY AND BLADDER

	No. Cases
Kidney:	
Nephro-ureterectomy	2
Nephrectomy	10
Nephrotomy or nephrolithotomy	33
Resection of kidney	3
Decapsulation	29
Nephropexy	20
Ureterotomy	2
Perinephritic abscess drained	4
Separation or transplantation of ureter to appendix, intestine, bladder	4
	107
Operations on the bladder	54
Total operations on kidney and bladder	161

Spinal anesthesia seems to have a special value in certain operations on the kidney and bladder. I have not hesitated to operate on both kidneys simultaneously under spinal anesthesia or to do a nephrolithotomy on the residual kidney after the removal of the opposite organ. In one woman aged about 60 the residual kidney had been opened three times previously for recurrent calculi. In a second case, although the residual kidney had been subjected to repeated operations and drained for eighteen months, the patient later married and successfully passed through several pregnancies. From decapsulation performed under spinal anesthesia on patients with advanced forms of nephritis with or without marked anasarcas, I have observed no untoward effects. The anesthetic seems also of especial value in operations on the bladder, especially in removal or resection for tumor, and for prostatectomy.

TABLE 5.—PLASTIC OPERATIONS, AND OPERATIONS ON RECTUM AND GENITALS

Plastic operations and curettements	287
Operations on rectum and anus	150
Operations on external genitals	106

Spinal anesthesia gives very satisfactory relaxation of the perineal muscles. The relaxation of the anal sphincter facilitates operations on the lower bowel. The anal sphincters are among the last to relax under ether and the first to relax under spinal anesthesia. As in other parts of the body, the lowered blood-pressure reduces the hemorrhage. Retention of urine after perineal and rectal operations seems to occur after spinal anesthesia with about the same incidence as it does after the employment of ether. I do not believe that the intradural injection is a causal factor in this condition. As indicating the innocuousness of repeated intradural injections, one patient has been subjected to spinal anesthesia not less than eleven times for repeated plastic operations for hypospadias without evidence of cord or root injury.

TABLE 6.—OBSTETRIC OPERATIONS

	No. Cases
Version	6
Induced labor	1
Manual extraction of 4 months	1
Dilatation and curettement	214
Forceps deliveries	36
Vaginal drainage for pelvic infection	17
Ectopic pregnancies	16
Cesarean section—ruptured uterus	1
Placenta praevia	8
Podalic version	3
Total	303

For a report of 173 of the cases given in Table 6 I am indebted to Dr. J. C. Applegate, obstetrician to the Samaritan Hospital. Dr. Applegate considered the condition of 60 per cent. of these patients such as to render the use of ether or chloroform undesirable. A number of the patients were exsanguinated. In the case of cesarean section the uterus had ruptured sixteen hours previous to the operation and the fetus was in the abdominal cavity. The patient was brought about 20 miles to the hospital and was pulseless. Although the patient seemed to be moribund when the operation was started, she made a satisfactory recovery. The heart action was maintained during the operation by the intravenous use of epinephrinized salt solution. Dr. Applegate reports no diminution of the uterine contractions, and no post-partum hemorrhage or other ill-effects after spinal anesthesia in his service.

I am also indebted to Dr. William A. Steel of the surgical service of the Samaritan Hospital for 109 of the cases given in Table 6, many of them treated in his private practice under the disadvantages incident to a poor home equipment. Dr. Steel notes that the uterine contractions were not abolished, that hemorrhage was markedly lessened, that the placenta may be expelled spontaneously, and that the after-coming head in breech or version operations must be extracted rapidly or else the lower uterine segment may contract on the neck.

In a personal communication Dr. James P. Marsh of Troy, N. Y., reports four successive and successful cesarean sections for eclampsia. The reduction of blood-pressure and the saving of time render the method of value.

In version and threatened uterine rupture the method may be used. Uterine inertia is probably less frequent after spinal anesthesia than after ether.

The danger of pregnancy to the woman with pulmonary tuberculosis is from the violent physical strain of labor. I am indebted to Dr. H. R. M. Landis for the suggestion that child-bearing may be rendered relatively safe to the tuberculous by an instrumental delivery under spinal anesthesia. In one primipara with a large pulmonary cavity, this method was employed with entire satisfaction. The patient had no labor pains or secondary ill effects, and a living child was easily extracted under spinal anesthesia. In pregnancy associated with serious heart disease the method also enables one to obviate all cardiac strain.

In fourteen of the cases in Table 6 I operated for ectopic pregnancy by a free incision through the vaginal culdesac. The affected tube was grasped, pulled down with the vagina, clamped or ligated and excised. A gauze drain was introduced from the vagina into the pelvis and the patient at once returned to bed. This simple operation requires but little time and was found useful in the "tragic" type of ruptured tubal pregnancy. There was no mortality in this small series. Spinal anesthesia has the advantage in obstetric practice of producing no ill effects on the child. In private obstetric practice, Dr. Steel considers that post-spinal cephalalgia is unusually frequent and severe. At present, however, I am inclined to consider postoperative headache and abducens palsy as evidence of the use of deteriorated or imperfectly sterilized solution. Solutions causing headache should promptly be discarded.

TABLE 7.—SOLUTIONS EMPLOYED IN SPINAL ANESTHESIA

Light Solutions:		
A. Stovain	0.08	gm.
Lactic acid	0.04	c.c.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
B. Tropacocain	0.1	gm.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
C. Novocain	0.16	gm.
Absolute alcohol	0.2	c.c.
Distilled water	1.8	c.c.
Heavy Solution:		
D. Stovain	0.08	gm.
Lactic acid	0.04	c.c.
Milk-sugar	0.10	gm.
Distilled water, to make	2.	c.c.

These solutions are conveniently kept in ampules, each containing 2 c.c. of solution. They should be prepared under aseptic precautions and sterilized by the intermittent method and at temperatures not above 65 C. (149 F). The dose, for the adult, of each solution, is from 1 to 1.5 c.c., the larger dose being employed only for robust adults. Of these solutions that of stovain is the most powerful anesthetic and motor paralyzant, most toxic, most actively hemolytic, and the strongest protoplasmic poison. If not acidulated it is precipitated by the alkaline cerebrospinal fluid. It gives excellent anesthesia. Tropacocain is somewhat less active as an anesthetic, and is considered by some to have fewer untoward effects. I have found, however, that each anesthetic when in solution may show variations in analgesic power and in toxic action, possibly due to imperfect sterility, to by-products not eliminated in the manufacture, or as a result of the decomposing effects of heat. Novocain is much weaker than stovain, but is not precipitated by cerebrospinal fluid, and even in a 10 per cent. solution is not actively hemolytic. The clinical efficacy and clinical toxicity of novocain I would estimate as about one-half that of stovain. The loss of epicritic sense is less under novocain. At present I employ solution A. Solution D is used in the rarer instances in which it is desired to keep the head elevated during the operation. Solutions extemporized from powders or tablets I have abandoned for fear of infection. Except to alter the specific gravity there is no advantage in adding epinephrin, strychnin, glucose, gelatin or similar substances in the anesthetic solution. The repeated production of spinal anesthesia in the same person is apparently no more harmful than a single injection. My experience indicates that if spinal anesthesia is not properly employed by one possessing sufficient clinical skill, it may have a large mortality. It should not be employed by those who have not developed trustworthy aseptic technic or who have not carefully mastered the physiology of the method.*

CONCLUSIONS

Spinal anesthesia is not a universal anesthetic, although it produces the greatest degree of muscle relaxation with the least protoplasmic disturbance. Even if skilfully administered it is probably more dangerous than a transient and light narcosis under ether or nitrous oxid-oxygen, but safer than a prolonged narcosis with complete relaxation under ether or nitrous oxid-oxygen.

Spinal anesthesia causes an earlier and more marked fall in blood-pressure than other anesthetics, with a slowing and weakening of the heart action, and should therefore be used with caution or avoided in conditions of marked hypotension of the circulatory system.

In certain cases in which alarming symptoms follow the inhalation of ether, spinal anesthesia may be used with success. Spinal anesthesia requires a more highly developed technic and a greater degree of watchful supervision than does the use of ether.

Certain sequelae such as headache and abducens palsy indicate that faulty solutions have been injected; late spinal cord degenerations probably do not occur in man; but various cord and nerve lesions may be simulated in the neurotic or hysteric and attributed to the injection.

In abdominal surgery it may be selected when there is an acute pulmonary, severe cardiac, vascular or renal disease, especially when associated with a high blood-pressure. In conditions of acute peritoneal sepsis it is valuable. Against spastic or paralytic ileus it is a most potent agent and its use will often render operative intervention needless.

In malignant disease and for operations on large tumors, while not free from danger, it is at times safer than ether. It does not eliminate the danger of cardiac failure in operations for uterine fibroids.

In obstetrics it facilitates operative delivery, lessens hemorrhage and reduces cardiac and pulmonary strain. In pulmonary tuberculosis it largely relieves the patient of the great danger of labor, the accentuation of the disease. In heart disease it relieves the patient of any strain on the heart tending to decompensation. For operative delivery, during eclampsia it is especially desirable, giving relaxation and lowered blood-pressure without interference with elimination. In extra-uterine pregnancy it is efficient. Spinal anesthesia is relatively safer in the young and robust than in the enfeebled and toxic.

2033 Walnut Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GELLHORN AND BABCOCK

Dr. A. E. Hertzler, Kansas City, Mo.: First, I wish to criticize Dr. Gellhorn's method of preparation of the patient. My experience is that the less you say to the patient the better. I should think that plugging the ears with cotton would excite rather than allay apprehension. My practice is to ask the patient whether local or general anesthesia is desired. When local anesthesia is selected I take the patient into my confidence and state the stages of the operation offering the greatest difficulties, and keep her informed as to the progress of the operation. The question of local anesthesia is largely one of industry on the part of the operator. Every operation can be done under local anesthesia if the operator has sufficient industry to carry out the procedure.

I desire to emphasize the point made by Dr. Babcock on the need of differentiation between the kinds of sensation that the patient has. It may be a sensation of touch and the operator may think it is a complaint of pain. Only by keeping in touch with the patient by questioning her can this point be determined. Restlessness on the part of the patient is often due to the operator's elbow resting on the patient's chest in abdominal work, or perhaps to the fact that some instrument is allowed to press on the region of hyperesthesia.

Dr. Fred J. Taussig, St. Louis: The work that is being done in the large clinics abroad and in this country will before long give us the exact indications and contra-indications for spinal anesthesia. Contrary to Dr. Babcock's views, I believe that in certain cases of myocardial disease I have had better results from spinal anesthesia than from any form of inhalation anesthesia. In the field of the radical abdominal operation for uterine cancer spinal anesthesia seems to be especially valuable. Any one who has operated on a considerable number of patients with this disease, doing the complete operation, knows what a severe strain it is on the individual. A very considerable reduction of about 30 per cent. in the primary mortality has been brought about by several operators with large experience, since in all of their operations they used spinal anesthesia in place of a general inhalation anesthesia.

I have encountered numerous failures when I have attempted to use the infiltration anesthesia spoken of by Dr. Gellhorn in a cervix that was still hard, as in cases of dysmenorrhea in multiparas in which dilatation and curettage were indicated. Here my percentage of failures was very great. In cases of recent abortion, however, with retained placental tissue or with hypertrophied endometrium, we can readily substitute infiltration anesthesia for general anesthesia. I have met practically no failures and believe with Dr. Gellhorn that recent abortion cases are much less liable to hemorrhage when such an anesthetic is used than when a general anesthetic is employed.

FURTHER POINTS ON THE STERILITY OF WOMEN *

EDWARD REYNOLDS, M.D.

BOSTON

The treatment of sterility has long been one of the comparative failures of gynecology; and one of the most striking points of the case as I have seen them in practice has been the frequency with which women who have been in fact sterile to husbands who are known to have normal spermatozoa have, nevertheless, been pronounced normal even by practitioners of recognized authority. I have, moreover, seen this repeatedly, even when in my opinion a fully adequate cause for sterility was at once apparent in the genitals and when treatment of this condition resulted in prompt fertility. The frequent occurrence of such failures as these must evidently have a reason, which I believe to be that symptoms of ill health of sufficient degree to demand treatment are always dependent on the existence of gross pathologic conditions which we have all long been trained to perceive, but that sterility, on the other hand, is usually dependent on mere perversions of function which are not readily perceptible anatomically, and can therefore be detected only by observation of their results as shown by an altered performance of the daily physiologic functions of the organs.

---

* For untoward effects see: Babcock, The Danger and Disadvantages of Spinal Anesthesia, Proceedings of American Therapeutic Society, 1913.

* Read in the Section [illegible] ology and Abdominal Surgery of the American [illegible] at the Sixty-Fourth Annual Session, held at [illegible] 1913.

* Because of lack of [illegible] abbreviated in The Journal. The complete [illegible] Transactions of the Section and in the author's reprints.

The use of the terms "gross pathology" and "perverted physiology," though strictly in accordance with modern thought, is so far new in this connection as perhaps to demand a definition of the sense in which they are used. Of course in an ultimate analysis any alteration of function is usually due to a variation in the anatomic state of the organ which performs it, but even important functional variations are sometimes so slight as to be unproductive of anatomic variations which are perceptible by the ordinary clinical observations; hence the distinction between a grossly perceptible lesion and one which can readily be appreciated only by its results seems practically helpful, and the expressions "gross pathology" and "perverted physiology" are used here in this sense.

The perversions of physiology which cause sterility in women may be classified under two heads:

1. Conditions of the mucous membranes of the genital tract which may be either small or great in degree, but which even if small lead to alterations of the secretions of these mucous membranes which are destructive to the continued life of the ova or spermatozoa which have been deposited in them, or which annul the effective motility of the spermatozoon in its efforts to reach the ovum.
2. Conditions in the ovaries which inhibit the formation of the ovum or prevent its release at maturity.

A paper which is limited to twenty minutes can evidently attempt no more than a summary of the main features of a large subject, and as I have recently published a much more extended paper on this subject,[1] I propose here to limit myself to such a brief recapitulation of the points there made as may render intelligible some further considerations which were omitted.

THE SECRETIONS

From the time the spermatozoa are deposited in the vagina and the ovum is released from the follicle to the time of their conjugation their only relation to the woman who is their host is that they live in her secretions. The primary condition for fertility is therefore that these secretions should be sufficiently normal to permit the continued existence of the sexual elements until their conjugation is effected.

The alterations of the secretions which destroy the life of the spermatozoa, or perhaps of the ova, are of two kinds: (1) changes in the secretions due to pathologic conditions of the mucous membrane which secrete them, and (2) mere fermentative or other chemical changes in the secretion poured forth by a normal mucous membrane.[2]

Either class of changes may be present either with or without detectible gross pathology and consequent symptomatology, but in either case the mechanism which produces sterility is the destruction of the spermatozoa or ovum by a hostile secretion, and it is therefore only by close observation of the secretions that we can determine the cause and consequent treatment of a given sterility. Further, when gross pathologies are present they be no more than indirectly unrelated to the sterility; and their treatment, operative or otherwise, has then no effect on the sterility, unless the conditions which cause this are treated concomitantly.

The genital canal may be anatomically distinguished by the character of its epithelium into four sections, the vagina, cervix, uterus and tubes. The secretions of any one or all of these divisions of the canal may be so altered as to be destructive to the spermatozoa, and may be so altered either chemically or mechanically. The secretion of any one of these divisions may be abnormal without prejudice to the secretions which originate above it, but an alteration of an upper secretion almost necessarily implies a similar abnormality of the secretions below it and into which it is discharged. In the management of a given case the conditions of each of these divisions must be observed separately and often from the necessities of the case seriatim; they should consequently be so described; and it further seems conducive to clearness to discuss the conditions of each section first without complicating them by questions of treatment, which may then be taken up by themselves.

The Vagina.—The ideal, normal vaginal secretion is that of the healthy virgin, in whom the vaginal secretion is clear and translucent; barely mucilaginous, and in quantity just sufficient to keep the vagina moist and lubricated, and at the same time to permit of disappearance of the secretion by evaporation as it reaches the surface, without the appearance of moisture in quantity noticeable by the woman.

In the patent vagina, which alone concerns our present subject, the secretion is, however, almost never so absolutely normal as this. The vagina of the virgin may be sterile, but so soon as coitus has become habitual the vaginal secretion always contains bacteria of many kinds, which have normally, however, been decreased in virulence and rendered innocuous to their hostess either by the moderate normal acidity of the secretion or by its other chemical characteristics.

The most common alterations of the vaginal secretion are chemical in the form of overacidity, biologic in the presence of active pus cells, and mechanical in great profuseness. The importance of such hostile conditions of the vaginal secretions is susceptible of experimental demonstration by means of various modifications of normal semen on the field of the microscope and direct observation of the effect of these modifications on the living spermatozoa. The majority of such studies have been concerned with chemical modifications of the semen itself, but there have been in addition a few reports of the effect on the semen of specimens of normal and abnormal vaginal secretions. It has further been occasionally possible to combine the necessary examination of the spermatozoa of the husband with the submission of his spermatozoa to contact with the vaginal secretion in question under the microscope, though from the condition of the case the opportunity of so treating fresh spermatozoa will occur but seldom. I had this opportunity once, and although in that case the vaginal secretion was not the only one affected, the prompt disappearance of motion in the spermatozoa as they came into contact with it was quite strong evidence that the existing alteration of the vaginal secretion was in that case quite enough to have caused sterility by itself.

The importance of the vaginal condition must, however, be estimated differently in the nulliparae who form the great majority of the sterility cases and in the multiparae who occasionally consult us for the so-called one-child sterility. . . . In multiparae with lacerated cervices and consequent eversion of a considerable portion of the cervical mucous membrane, it is easy to demonstrate that such a condition as, for instance, the existence of a hyperacidity of the vaginal secretion, is comparatively unimportant. The reaction of the vaginal walls and of the vaginal surfaces of the cervix may in such cases be shown by test paper to be actively acid, while the same paper applied to the cervical mucous membrane when it is thrown into eversion by a speculum will show a neutral or faintly alkaline reaction. With this surface freely exposed to immediate contact with the spermatozoa during the mechanical distention of the vagina in coitus, and remembering that the deposition of only a few spermatozoa on its surface may be sufficient for fertilization, it becomes evident that with such multiparae the hostile condition of the vaginal secretion is of little importance; on the other hand, in a nullipara with the same excessively acid vaginal secretion, but with a pinhole os, the acid reaction of the vaginal surface of the cervix, extending, as it does, to the very edge of the os, makes the chance of the entrance of the spermatozoon into the safety of the alkaline reaction before contact with the acid vaginal secretion so extremely small as to constitute practical sterility from the condition of the vaginal secretion alone. The same considerations probably apply with equal force to the other possible alterations of the vaginal secretion, though with them the actual demonstration is less easy than with the mere change of reaction.

---

[1] Reynolds, Edward: The Theory and Practice of the Treatment of Sterility in Women, THE JOURNAL A. M. A., Jan. 11, 1913, p. 93.

[2] Such a change may, of course, in time react on the condition of the mucous membrane itself.

The Cervix.—The importance of a differentiation between the condition of the cervix and that of the cavity of the uterine body may seem at first sight doubtful; but the existence of a differentiated cervix and cervical cavity is in its full development peculiar to the human race and forms an element which deserves consideration in all comparisons of the physiology of impregnation as between man and the quadrupeds. . . .

The normal mixed secretion of the uterine and cervical cavities is, as it emerges from the os, clear, limpid, translucent and of about the consistency of the white of an absolutely fresh egg. The normal quantity is just that which is sufficient to keep up a constant but almost imperceptible slow flow from the os. Excessive quantity, cloudiness, turbidity and either a mucopurulent or seropurulent appearance are alterations which usually affect both cavities, that is, both the uterine and cervical. Inspissation and stringiness of a portion of the secretion, while the rest remains abundant and substantially normal, is usually an alteration of the cervical condition alone.

The most common causes of alteration of the cervical secretion alone are retention and consequent inspissation of the secretion behind a pinhole os, in which condition the cervical cavity is frequently considerably dilated, thus forming a retention cavity, hypertrophy of the cervical mucous membrane, often semipolypoid in nature, and localized dilatation of cervical glands, with the resultant escape of small quantities of thick stringy secretion. It is probable that the occurrence of inspissation is usually dependent on contamination of the secretions, at least by some of the bacteria of fermentation.

The Uterine Cavity.—The shape and direction of the cervix and shape and situation of the os are always points of importance, because the extremely common underdevelopment of this portion of the organ usually impose some degree of obstruction to the exit of the uterine secretion, and it is as true in this organ as in other mucous membranes that there can be no complete recovery from chronic inflammation without free drainage. It is only necessary to refer to the experience of the rhinologists in the nose and urologists in the male urethra to recall to your memory the extreme persistence of chronic alterations in secretions behind even partial obstruction. So long as the uterine secretion is thickened, clouded, mucopurulent or seropurulent there will be no pregnancy.[3]

The Fallopian Tubes.—It has not generally been realized that the fallopian tubes have a normal secretion, but they are lined with a mucous membrane and, moreover, with a moist and ciliated epithelium, the cilia of which row toward the uterus; it follows of necessity that there is a tubal secretion in continual drainage through the uterus. We are ignorant of the nature of this secretion, though it is probable that it is clear, limpid and scanty in amount; we do know that when the tube is infected its fimbriated extremity closes by adhesion and that it becomes distended with an altered secretion, the character of which varies with the individual infection.

Repeated observations in the course of abdominal operations made since I have been especially interested in sterility have convinced me that in addition to these gross salpingites with which everybody is familiar there are many minor alterations of the tubes, chronic congestions, often with thickening, which have not led to closure of the fimbriated extremity, though such would probably follow in time. Just as the distinct salpingites usually follow an endometritis, so these minor alterations of the tubes have seemed to me to be always associated with similar conditions in the uterine body, and from results I have inferred that they tend to disappear with the latter under the influence of complete drainage, in connection, of course, with depletion and other minor treatment. Remembering that the tubes are morphologically merely a portion of the uterus it would, moreover, seem that these things must necessarily be so.

It is to be remembered, however, that the tubes are double and it might be supposed that with one tube normal the condition of the other was comparatively unimportant; but we must also remember the principle already laid down that alteration of an upper secretion always implies alteration of all the secretions below it, and in accordance with this principle there is considerable evidence to show that with one tube normal and the other pathologic, the spermatozoa may be prevented from reaching the secretions of the normal tube by inability to pass through the abnormal secretions of the uterine cavity which are perpetuated by the continued existence of the other (diseased) tube above. When the abnormality of the tube is slight the diagnosis of such a one-tube sterility is often difficult, but may usually be established with a fair degree of probability by sufficiently careful examination under anesthesia and a comparison of the results of this examination with the tenderness noted without anesthesia and the probabilities derived from the clinical history. Close study of such cases, however, is well worth while, since after proper treatment of the abnormal condition below and the removal of the diseased tube their prognosis is extremely good.

---

[3] It may be remarked in passing and without entering as yet on the subject of treatment, that for the majority of these conditions the routine expedient of dilatation and curettage is usually totally inefficient to the production of fertility, and the sooner the profession as a whole learns this the better it will be for their patients.

THE OVARIES

The existence of an ovarian infertility has long been accepted as a possible though vague explanation of some otherwise inexplicable sterilities; but descriptions of the actual conditions which produce ovarian infertility and study of the possibilities of remedying it are conspicuously absent from medical literature.

The alterations of the ovaries which are most commonly present in sterility cases are slight to moderate enlargements, caused either by the presence of numerous small to medium-sized retention cysts, or by the presence of unduly large, persistent and frequently cystic corpora lutea.

Multiple retention cysts may be distinguished from the normal presence of one(or very occasionally more than one) mature normal follicle by their persistence, undue size or large number. They are usually accompanied by undue thickness of the capsule and are usually bilateral.[4] They are familiar objects to every abdominal surgeon. They are not usually considered of importance. In the course of a long series of conservative operations on enlarged ovaries for other reasons their relation to sterility had not occurred to me until a review of all my cases of conservative surgery of the ovaries led me to notice the considerable frequency with which this work was followed by pregnancy in women who had previously been sterile for a number of years. Since then I have watched this point in every case in which I have opened the abdomen and have seen but one case of bilateral enlargement of the ovaries by multiple retention cysts in a fertile woman. The addition of the conservative surgery of the ovaries to my armamentarium for the relief of sterility in carefully selected cases naturally succeeded and was at once followed by a marked increase in the list of successes.

The assertion that bilateral enlargement of the ovaries by multiple retention cysts bears a causative relation to sterility is at present incapable of either proof or disproof other than by clinical results, the histologic evidence which I had hoped by this time to be able to bring forward having been interrupted by the accidental destruction of a considerable number of specimens which had been carefully preserved for this purpose. I hope in the future to be able to produce such histologic evidence in proof or disproof of my present belief.

The importance of persistent corpora lutea as a cause of sterility is more easily established. Even the possibility of the existence of a pathologically persistent corpus luteum in the human ovary is a somewhat new suggestion, though scattered reports of such cases have appeared from time to time for many years;[5] but it is a quite common surgical experience in the resection of ovaries to find apparently unduly large, and sometimes even cystic corpora in ovaries, some of which have been known to be enlarged for many months, or even years; and the whole trend of modern study warrants the view which some of the best authorities affirm as positively established that the presence of a corpus in the ovaries inhibits further ovulation. There is, moreover, interesting clinical evidence of their importance. Among my records of sterilities which have been successfully treated I find three cases in which a stationary enlargement of one ovary had been noted from periods of several months and in which the enlargement of the ovary was found at operation to be caused by a large and more or less cystic corpus. I find four other cases in which a similar condition was found at operation but in which the patient had been under observation for but a short time before the operation was undertaken. In each of these seven cases the enlarged and apparently persistent corpus was removed from the ovary and its bed closed over, and in every one of the seven cases the operation was followed by the prompt appearance of pregnancy in a previously sterile woman. Further, a similar though less surgical method of removing the persistent corpus has been classical among veterinary surgeons in the treatment of sterile cows for many years and is stated to be very successful.[6]

The subject of the differential diagnosis between these several forms of moderate enlargement of the ovaries is one which I have been for some time studying and which I hope can yet be rendered probable by the differential symptomatology,. but on which I am not yet ready to speak. It is of practical interest in connection with both of these alterations of the ovaries that they are seldom if ever seen in cases which are wholly free from alterations in the lower portions of the genital tract. I have so far seen no such case. It follows that the routine submission of sterile women to abdominal section without careful, exhaustive study of the other conditions is totally unjustifiable and would result in much unnecessary operating. The case as a whole must be carefully investigated first; even then the propriety of instituting an abdominal operation for sterility alone must rest on the conditions of the individual case. It is probably justifiable only when considerations connected with the health of the patient warrant a section independently, or in carefully selected cases after the lower alterations from the normal have been remedied by treatment without avail, and when the intense desire of the patient and her husband for children renders them fully ready to assent. It should certainly not be attempted for sterility alone by the unskilled operator.

METHODS OF TREATMENT

A complete discussion of the technical details of the treatment which has been found in my experience the most successful in the management of sterility dependent on (*a*) alterations of the secretions, or (*b*) ovarian alteration, would form a complicated subject which would necessarily run into great length; moreover, so much of the choice of detail is as yet necessarily empirical, that it would be difficult to put it on paper in clear form. The general principles which govern it can, however, be so stated. Their application to an individual case must be governed by experience as influenced by study of that case.

Treatment of the Altered Vaginal Secretions.—The alterations of the vaginal secretion are apparently always due to infection, with the exception of profuseness which is usually the result of a general pelvic congestion or of those hyperacidoses which are a part of general constitutional hyperacidosis. Treatment naturally follows along the lines indicated by these three etiologies.

The cause of a pelvic congestion must be ascertained and remedied. . . .

General hyperacidosis demands the appropriate general medical treatment.

The results of infection vary in accordance with the bacteriology from mere fermentations of the secretion up to the gross pathologic conditions. . . .

---

[4] When strictly unilateral, they are probably not necessarily causative of sterility.

[5] Hirst, B. C.: The Corpus Luteum of Pregnancy in Non-Pregnant Women, Med. News, *April 5, 1890.*

[6] Williams, W. L.: Veterinary Obstetrics, Including the *Diseases of Breeding Animals*, Ithaca, *1909.*

The Cervical Secretion.—When the vaginal secretion has been disposed of the condition of the cervix must be investigated. This should be carried out first by simple observation of the character of the cervical secretion, and of its quantity as observed for a considerable length of time through a speculum, and by expression of the retained cervical secretion by compression of the cervix; and next by examination of the shape and dimensions of the cervical cavity with a sound and by hooking out any thickened secretion from along its walls with the sound or wire loop. . . .

The Uterine Secretion.—The only two methods of treatment of the uterine mucous membrane which need be mentioned are curettage and disinfection, and for safety and effectiveness both of these are dependent on the coincident institution of free uterine drainage. No disinfection of the uterine cavity is safe unless it is done in the presence of the complete distention and free drainage which is usually attained only after an operative opening of the canal; it is then harmless. Curettage is usually also necessary whenever the uterine mucous membrane is the seat of definite alterations; but no one who has had the experience of removing uteri which have just been curetted can have failed to be impressed with great skepticism as to the results of curettage as ordinarily performed. When a uterus is so inspected it is surprising to see how much of the mucous membrane has been left untouched even by a very careful curettage, and it is, I believe, usually impossible to perform even an approximately thorough curettage without the use of several curets, or of one which can be adapted to every part of the uterine cavity. . . .

Such permanent free drainage is almost never effected by mere dilatation. It can be established only by careful study of the causes of defective drainage in the individual case and the adoption of appropriate plastic work to remedy its cause. Successful determination of these abnormalities often demands very close study; for instance, careful exploration of the region of the internal os after the cervix has been opened by a discission, with a sound which has had the extreme tip bent to an acute angle, often reveals unexpected angulations of the canal, or the existence of bars or prominences in the mucous membrane on the anterior or posterior wall, or both. These phenomena are quite preventive of free drainage and furnish the best of reasons for the persistence of abnormal secretions, yet they are quite unknown to those who merely practice dilatation of the os. All of these conditions are most frequent when the cervix is in anteflexion and underdeveloped. These conditions may demand bilateral division of the cervix and its subsequent repair, the posterior discission and release of forward fixation of the cervix which I have described,[7] or other plastics, or even operations from above; the choice must be left to the plastic sense of the individual surgeon.

After the performance of any of these plastics the uterus should be curetted and the curettage should usually be supplemented by thorough, deep disinfection of the uterine mucous membrane as a part of the operation, and while the canal is still in acute operative distention and consequently under freer drainage than it will have at any other time.

Tubal Sterilities.—The tubes and ovaries are not appropriate for minor treatment other than as the drainage and disinfection of the uterine cavity may usually be relied on as aids to the subsidence of the minor tubal alterations described before, and as the institution of permanent free drainage from the uterus may often be depended on to relieve the minor abnormalities of both the tubes and ovaries. Both of these organs if directly attacked at all must be attacked by major operations; and as the technic of their reparative surgery is again a subject which must be left to the plastic instinct of the individual operator, which is extensive, and on which I have given my views elsewhere,[8] I shall omit further reference to it here.

At the bottom of the whole subject of treatment lies the principle that even the ovarian infertilities are almost invariably associated with physiologically obstructive conditions in the genital canal, minor or major, and that the patency of a canal is only the patency of its most obstructed point; moreover, it must be remembered that I am speaking here not of that simple phenomenon, mere mechanical patency, but of that much more complicated and delicate matter, the physiologic patency, which permits the passage of a living ovum and of a living and actively motile spermatozoon to their point of conjugation, and finally to the implantation of a fertilized ovum. Perhaps the most important and certainly the most generally overlooked point in the whole subject is that the destruction of this delicate physiologic patency is frequently effected by alterations which are so minute in degree or limited in area as to escape diagnosis under merely routine observation. . . .

Accurate, minutely accurate, diagnosis; the limitation of treatment to the areas affected without unnecessary invasions of normal structures above the affected areas; the attainment of complete drainage by appropriately planned and executed plastic work in combination with deep mechanical or disinfective treatment of the affected areas and of them only; and the recognition and treatment of ovarian infertility, when it exists, are the essential principles in accordance with which all the details must be planned.

The treatment of sterility is frequently operative and as such demands operative skill and readiness to assume a not infrequently considerable operative responsibility; but it also involves a minuteness of diagnosis and a patience in treatment which must be exercised sometimes before operation, sometimes independently of operation, sometimes after operation. These facts in connection with the exquisite balance which is necessary to the continued life of the spermatozoon and ovum within the genitals; to success in their search for each other, and to that conjugation and attachment to the decidua which means fertility, all combine to render this subject an intricate one, and to make its treatment one which is almost a specialty within a specialty; moreover, much more study is needed before its details can be placed within the category of accepted text-book knowledge, but that with patience, intelligence, and minute observation, treatment may be made satisfactory and successful is already assured.

321 Dartmouth Street.

ABSTRACT OF DISCUSSION

Dr. Robert T. Frank, New York: Dr. Reynolds has modified our conception of the factors which enter into the production of sterility largely because he has not limited himself to the usual course of study in this subject. He has not confined his attention to the gross mechanical lesions, but has concentrated his efforts in trying to elucidate the "physiologic perversions," as he happily terms them. Dr. Reynolds apparently lays a great deal of stress on the external secretions of the genital tract. Perhaps he is right. The factors which enter into the production of these sterilities are so complex that it is necessary to divide sterility into several classes. I agree with Dr. Reynolds that gross mechanical lesions play a subsidiary rôle. This is shown by the frequency of conception in the presence of vaginal septa and in the presence of fibroids, some of them obstructing the uterine canal. This is shown by conceptions even in the presence of every obstacle that Nature or art can place in its way. Conception has been reported through a vesicovaginal uterine fistula. In my opinion the condition of disturbed function, on which Dr. Reynolds laid so much stress, is really the factor we must study in order to advance in our treatment of sterility. The uterus is often at fault, but not as was formerly considered, not from an inflammatory lesion or chronic endometritis, for instance. In order that conception may successfully take place it is necessary that the ova grow up, ripen and be expelled and received into the tube. Then the corpus luteum must form in the ruptured follicle. Unless this last has occurred the uterine mucous membrane will not be sensitized for the reception of the ovum. This sensitization is necessary in order that the ovum may take root. The corpus luteum is the factor that produces this reaction. Dr. Reynolds, therefore, justly laid great stress on the persistence of the corpus luteum, because a persistent corpus luteum, among animals, has been shown to cause sterility by preventing further growth of all ova which have attained a good size in the ovary. Unfortunately, I think that in the human being we cannot consider the matter so simple as this, for, were the persistent corpus luteum a regular cause of sterility, these cases should always be accompanied by amenorrhea, which is by no means the case. The problem is therefore extremely complicated. The most necessary thing for us to determine, either through animal experimentation or from human observation, is in what case the condition of sterility is due to the uterus, in what case due to the ovary, and particularly whether or not menstruation and ovulation coincide. In this last matter, which has been so long sought for by gynecologists, lies the crux of the question.

---

[7] Reynolds, Edward: Anteflexion of the Cervix and Spasm of the Uterine Ligaments in Relation to Retroversion, Dysmenorrhea and Sterility, Surg., Gynec. and Obst., July, 1911, p. 17.

[8] Reynolds, Edward: The Ultimate Results of the Conservative Surgery of the Ovaries, Surg., Gynec. and Obst., March, 1912, p. 255.

Dr. Laura Branson, Iowa City, Iowa: I have long been interested in the subject of sterility of women, particularly in that form dependent on ovarian conditions. I was much pleased to hear Dr. Reynolds point out the possibility of the ovary having much to do with the condition of sterility. There is but little literature on this subject. In an April number of The Journal a report gives the following conclusions from a biologic point of view: (1) In vertebrates, the female possesses all sex qualities; (2) The habitat of these sex qualities in the ovary; (3) These sex qualities are developed by the internal ovarian secretion. The biologic conclusions also point to the fact that the ovum is developed by this internal ovarian secretion and that it inhibits or prohibits the menstrual function. Right along this line, let me say that I am more than pleased at the conservative manner in which surgery of the ovaries is at present conducted, because now while biology and physiology are pointing in the direction of study of the ovaries we shall have material left *in situ* on which to base these investigations and experimentations, whereas a few years ago ovaries were removed which might have been saved to perform the functions for which they were intended.

Dr. Charles S. Bacon, Chicago: There is one feature of this subject which I think may be mentioned—the influence of the corpus luteum in sensitizing the decidua. This might possibly furnish a clue to treatment. One might use the products of the luteal body of animals or the corpus sensitized from the uterus. I have employed it in some instances in which, apparently, I obtained results. This gives us something for further study.

In addition, there is the question, How often do we have, not a very early abortion, but an incomplete nidation, resulting in an abortion? This, of course, is part of the sterility problem, and here also the early abortion may be due to the lack of the corpus luteum secretion. Here, too, possibly there may be some help from the early diagnosis of pregnancy. The diagnosis is most important in women who have irregular menstruation. It is of the utmost importance to determine whether we have to do with early abortion. If the newer methods of diagnosis will help us in this, they will help in solving a practical problem.

Dr. J. H. Jacobson, Toledo, Ohio: We must be certain that there are no mechanical disturbances present before we suspect that the secretions are at fault. In short, we must demonstrate positively that there is a patent genital canal extending from the Graafian follicle to the vulva. If you will recall the anatomy of the fallopian tube, you will remember the differences in structure of the tube at its inner and outer end. The lumen at the outer end of the tube is large and there is comparatively little muscular tissue; at the inner end of the tube there is much wall and practically no lumen. The patency of the inner end of the tube is difficult to determine, and it is this particular part of the genital tract that I believe is often the seat of obstruction, the result of inflammatory changes at this point. For some time past, from specimens removed at operation, we have tried to determine the patency of the uterine end of the fallopian tube. We have found that in most cases in which there has been a previous salpingitis, even though of mild character, we could hardly ever get injected fluid through into the uterine cavity. I feel that in the surgical treatment of sterility this form of obstruction is probably the most important lesion to determine. The operation of hysterotomy, as advocated by Deaver, will find a field of application for this class of patients.

Dr. Edwin Reynolds, Boston: Dr. Jacobson brings out a point. We are dealing with something more than a question of mechanical patency. We are dealing with a question of a very delicate physiologic patency. Just as the strength of a chain is the strength of its weakest link, so the patency of a canal is the patency of its most obstructed portion. Now, the point which I wish especially to drive home, if I can, is that, while it is ridiculous to say that there is anything short of an absolute obstruction which can prevent the passage of the ovum, nevertheless, if there is a relative mechanical obstacle, a lack of mechanical patency, there will be a lack of physiologic patency from the inspissated, thickened and altered secretions behind that mechanical impatency, or partial impatency.

FUNCTIONAL TEST (PHENOLSULPHONEPHTHALEIN) OF THE KIDNEY IN SCARLET FEVER *

M. FISHBEIN, M.D.
CHICAGO

Rowntree and Geraghty[1] in 1910 introduced phenolsulphonephthalein tests as a method of determining the functional ability of the kidney. They found on subcutaneous injection of the dye that in normal persons from 40 to 60 per cent. is excreted after one hour and from 20 to 25 per cent. after two hours. They found that in acute nephritis the activity of the kidneys may fluctuate greatly in twenty-four to forty-eight hours. In parenchymatous nephritis there is a marked decrease in the amount of drug excreted and in chronic interstitial nephritis a low output was found in all cases. Later they[2] showed that the test is of value in that by showing a marked decrease in renal function, it indicates impending uremia when other signs are lacking. They conclude that intramuscular injections are better than subcutaneous. This work has been confirmed by Boyd.[3]

---

* From the Durand Hospital of the Memorial Institute for Infectious Diseases, Chicago.

[1] Rowntree, L. G., and Geraghty, J. T.: Jour. Pharm. and Exper. Therap., July, 1910; abstr., The Journal A. M. A., Aug. 20, 1910, p. 720.

[2] Geraghty, J. [illegible] L. G.: The Phenolsulphonephthalein Test f[illegible] Function, The Journal A. M. A., Sept. 2.

[3] Boyd, Montague L.: [illegible]nephthalein and Functional Tests of the Kidneys, The Journal A. M. A., March 2, 1912, p. 620.

who examined a large series of cases, the test proving of especial value in cardiorenal disease, indicating to what extent impaired renal function was responsible for the symptoms.

Erne,[4] using intramuscular injection, found that from 47 to 68 per cent. of the dye was excreted after one hour, and from 74 to 85 per cent. after two hours. Phenolsulphonephthalein tests in a large series of cases showed a lowered excretion when renal lesions existed. The occurrence of albumin in the urine and the excretion of phenolsulphonephthalein did not run parallel. The severity of the objective and subjective symptoms was in each instance in accord with the indications of the results of the test.

The tests have now been made on many hundred cases and in over forty, at least, post-mortem examinations have confirmed the presence of conditions suggested by the test-results.

In the cases here reported the dye was injected intramuscularly. The bladder was emptied and specimens of urine collected after one hour and after two hours. The colorimeter used was that described by Cabot and Young,[5] which consists of a series of twenty tubes, containing 5, 10, 15, etc., per cent. of the dye.

The following protocols will indicate the results obtained:

REPORT OF CASES

Case 34.—Girl, aged 8; previous illness, measles, pertussis, varicella; developed a quite severe scarlet fever April 12; highest temperature 103.6; fever only four days; severe nonsuppurative adenitis from April 16 to April 27; albuminuria from May 6 to May 25.

TABLE 1.—URINE, CASE 34

Date	Amount, c.c.	Sp. Gr.	Albumin	Reaction	Diacetic Acid	Acetone	Ammonia	Microscopic
4/19	1450	1.002	0	acid	0	0	.7308	0
5/6	....	1.012	++	acid	0	0	.....	0
5/8	1420	1.004	trace	acid	0	0	.1512	0
5/25	1450	1.010	trace	acid	0	0	.4698	0
5/27	....	1.008	0	acid	0	0	.....	0

Phenolsulphonephthalein test, May 22, five weeks after onset: first hour, 38 per cent.; second hour, 18 per cent.; total, 56 per cent.

Case 46.—Man, aged 26; previous illnesses, measles, varicella, typhoid; very mild scarlet fever beginning May 1; fever up to to 102 for three days; no complications; no albuminuria.

TABLE 2.—URINE, CASE 46

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction.	Diacetic Acid	Acetone	Ammonia.	Microscopic
5/23	3100	1.003	0	weak acid	0	0	.7254	0

Phenolsulphonephthalein test, May 22, three weeks after onset: first hour, 35 per cent.; second hour, 18 per cent.; total, 55 per cent.

Case 40.—Man, aged 25; mild scarlet fever beginning April 19; fever up to 102 for eleven days; delirious April 26 to April 29; during delirium patient received spirits of mindererus, ½ ounce every four hours, and enemas of normal salt solution containing 10 grains of sodium bicarbonate every four hours; there was continuous marked improvement.

TABLE 3.—URINE, CASE 40

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction.	Diacetic Acid	Acetone	Ammonia.	Microscopic
4/26	....	1.014	0	acid	+—+	+	....	0
4/28	1100	1.014	0	acid	++	+	1.376	0
4/30	4500	1.002	0	acid	0	0	.729	0
5/23	2900	1.003	0	acid	0	0	.417	*

* Hyaline casts.

Phenolsulphonephthalein tests, May 22, five weeks after onset: first hour, 25 per cent.; second hour, 30 per cent.; total, 55 per cent.

Case 45.—Girl, aged 22; previous illnesses, measles, pertussis, pneumonia, appendicitis (no operation); moderately severe scarlet fever beginning April 28; fever up to 103 for twelve days; severe polyarthritis; no albuminuria; severe headaches during fourth week.

TABLE 4.—URINE, CASE 45

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction.	Diacetic Acid	Acetone	Ammonia.	Microscopic
5/25	2000	1.002	0	acid	trace	0	.81	†
5/30	2000	1.004	0	acid	0	0	.45	†

† Few hyaline casts.

Phenolsulphonephthalein tests, May 24, four weeks after onset: first hour, 8 per cent.; second hour, 18 per cent.; total, 26 per cent. May 27, four weeks after onset: first hour, 20 per cent.; second hour, 33 per cent.; total, 53 per cent.

Case 53.—Man, aged 25; no previous illnesses; mild scarlet fever with marked scarlet exanthem beginning May 12; fever up to 100.6 for five days; developed albuminuria May 27 which persisted until August 1.

TABLE 5.—URINE, CASE 53

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction.	Diacetic Acid	Acetone	Ammonia.	Microscopic
5/17	....	1.005	0	acid	trace	0	1.0	0
5/25	2200	1.006	0	acid	0	0	.71	0
5/30	4000	1.002	+	acid	0	0	.60	†
6/2	4400	1.001	++	acid	0	0	.55	‡
6/21	....	1.018	1.75 Esbach	acid	0	0	..	‡
6/31	1325	1.013	.5	acid	0	0	..	§

† Hyaline casts.
‡ Hyaline and granular casts.
§ Hyaline, granular and epithelial casts.

Phenolsulphonephthalein tests, May 22, ten days after onset: first hour, 48 per cent.; second hour, 16 per cent.; total, 64 per cent. May 27, two weeks after onset: first hour, 53 per cent.; second hour, 32 per cent.; total, 85 per cent.

Case 95.—Boy, aged 12; previous illnesses, measles pertussis; rather mild scarlet fever beginning June 19; fever up to 102 for twelve days. On July 11, a *trace of albumin* appeared in the urine. On the morning of July 12, a slight puffiness below the eyes was noted. The *patient complained* of severe headache. By evening the whole face *appeared swollen*. The urine was extremely scant. On the morning of the 14th the face and eyes were markedly puffy, headache was severe and the patient vomited. On the 13th one-half ounce of magnesium sulphate was given. On the 14th, an ounce of magnesium sulphate and a hot pack were given. The patient was also given 4 ounces of Fischer's isotonic enema (consisting of 10 gm. of sodium carbonate and 7 gm. of sodium chlorid *in a liter* of water), by the drop method every four hours. The vomiting and headache continued. On the 15th the treatment continued as before. June 16, the patient was given a hot pack morning and evening and the hypertonic enema containing 14 gm. of *sodium chlorid and 16* gm. of sodium carbonate was substituted for the isotonic solution. At 7 a. m. he became comatose and had irregular movements of the hands and legs; on being placed in a hot pack the symptoms abated. At 3 p. m. another attack occurred which was also relieved by hot pack. At this time sodium bicarbonate, 10 grains every four hours and sodium citrate 15 grains every four hours were ordered. From this time on the flow of urine became profuse and as the patient passed on to quick complete recovery the alkaline treatment was gradually discontinued.

---

[4] Erne: München. med. Wchnschr., 1913, xl, 510.

[5] Cabot and Young: Boston Med. and Surg. Jour., 1911, clxv, 549.

TABLE 6.—URINE, CASE 95

Date	Amount c.c.	Sp. Gr.	Albumin	Reaction	Ammonia	Microscopic
7/11	....	1.005	+	acid	...	0
7/14	280	1.016	+	acid	1.8	Hyaline casts
7/15	300	1.015	1.2*	acid	...	Hyaline and granular casts
7/17	....	1.027	2.1	acid	...	Hyaline and granular casts
7/18	....	1.020	1.5	acid	...	Hyaline casts
7/19	980	1.001	0.4	alk.	0.5	Hyaline casts
7/20	2100	1.005	0.3	alk.	..	Hyaline casts
7/21	2600	1.002	0.3	alk.	...	Hyaline casts
7/22	2940	1.004	trace	alk.	...	0
7/23	3220	1.002	0	alk.	...	Hyaline casts
7/25	....	1.005	0	†	...	0

*Esbach. †Weak alk.

Phenolsulphonephthalein test, August 5, 7 weeks after onset: first hour, 38 per cent.; second hour, 20 per cent.; total, 58 per cent.

The histories represent the general results of the test in scarlet fever.

In Table 7 the results of these and other cases are summarized.

TABLE 7.—*RESULTS OF PHENOLSULPHONEPHTHALEIN TEST IN SCARLET FEVER*

No.	Type	Duration Weeks	Complications	*First* Hour %	*Second* Hour %	Total %
46	Very mild	3	None	35	18	53
40	Mild	5	None	25	30	55
44	Quite severe	5	Acute Nephritis	38	18	56
45	Severe	4	Polyarthritis	8	18	26
		5		20	35	55
48	Severe	3	Infection accessory sinuses	50	15	65
51	Very severe	2	Bartholin abscess	35	20	55
52	Moderate	2	None	35	30	65
53	Mild	2	Acute Nephritis	48	16	64
				53	32	85
43	Severe	3	Acute dilatation of heart, acute nephritis	75	6	81
95	Mild	7	Uremia in fifth week	38	20	58
11	Very severe	3	None	47	23	70
12	Very severe	3	Headaches and nausea	25	23	48
59	Very severe	1	*	15	10	25

* Patient died in epileptic attack 7 days after onset. Post mortem there were found passive congestion and cloudy swelling of kidneys. Marked albuminuria throughout time of observation.

CONCLUSIONS

There seems to be a general lowering of the renal function during the *latter stages of scarlet fever.* In nearly all uncomplicated cases examined from the third to the fifth week a total output averaging 55 per cent. was observed as compared with a normal of 65 per cent. to 85 per cent. In the instances of *acute nephritis,* an increased output was observed in two, a lowered output *in one.* In several instances in which headache and nausea *occurred,* although no albumin was found in the urine the test showed a decreased function of the kidney. The practical value of *the test* as an aid in the treatment of this disease in which nephritis is so common a complication is apparent.

RESULTS OBTAINED IN THE NON-SURGICAL TREATMENT OF TUBERCULOSIS OF THE JOINTS*

H. WINNETT ORR, M.D.
LINCOLN, NEB.

The reasons for and against the surgical treatment of joint tuberculosis have been ably *presented and discussed* by many good writers on the subject. Perhaps the whole argument on the operative treatment of joint tuberculosis is as well presented in the recent work of Goldthwait, Painter and Osgood,[1] as anywhere in recent literature. As I interpret their attitude on this question, it is that we are and should be drifting away from the tendency to operate in these cases in adults as well as in children, but that in selected cases operation may still be considered to be admissible for a variety of reasons, five of which are set forth as being worthy of consideration in connection with radical surgical treatment. Of the five all are held to be invalid under most circumstances. With the views set forth by Goldthwait, Painter and Osgood in this work it is my pleasure to agree most heartily. Their conclusions are at the same time scientific and sensible. It is my purpose, however, in this paper to carry their teachings somewhat further and to strengthen their conclusions if possible, by a series of observations, somewhat different from theirs, on my own patients.

It has been some years since I began to be impressed with the fact that patients with joint tuberculosis coming under our observation who had previously been operated on were, as a general thing, much more seriously disabled and that the active stage of their disease was much more prolonged than even the advanced cases in which the patients had not previously resorted to surgery.

My intention is to compare, in patients operated on and those not operated on, the periods of active disease process and the amounts of resultant deformity. I have therefore checked up recently a series of fifty patients of this character, of whom I had satisfactory records for the purpose. I have attempted to determine the actual period in each during which the disease may be said to have been active. In many cases this was of necessity a matter of estimate, but I have tried to be fair and liberal both to those operated on and to those not operated on. The results of this study show a wide margin of advantage for the patients not operated on. In fact, although the information used is somewhat difficult to determine for statistical purposes, the patients not operated on have done so much better than those who were operated on that the tendency of the conclusions is inevitable, even if a measure of inaccuracy in the original figures should exist.

I found, for example, that of all patients operated on before coming under our care at the Nebraska Orthopedic Hospital and in my private practice and all patients not operated on, the patients operated on averaged a period of active disease much more than twice as great. It is difficult to arrive at any very satisfactory conclusions regarding the amount of difference in the resulting deformity, but conclusions based on estimates as fair as I am able to make them indicate that the patients operated on suffer an amount of deformity greater than the patients not operated on, which also approximates 50 per cent. This fairly agrees with my conclusion as to the length of active disease, for active disease over twice the period would naturally mean more bone and joint destruction and correspondingly greater deformity.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth *Annual* Session, held at Minneapolis, June, 1913.

[1] Goldthwait, J. E.; Painter, C. F., and Osgood, R. B.: *Diseases of the Bones and Joints,* Boston, 1909.

Operation in adults especially is perhaps most frequently invoked as a time-saving expedient. In the patients studied this proved to be a fallacy, as these patients were disabled much longer than the average of patients conservatively treated. Those who did not recover primarily from the surgical operation still thought their treatment practically over, and went or were allowed to go about with the usual result—mixed infection and continued trouble.

There are three or four principal factors which contribute to the bad results which I charge up to surgical interference in these cases: (1) operation on patients who have not been properly selected; (2) operation by inexperienced surgeons under unfavorable conditions, and (3) failure on the part of experienced surgeons who have done good operations to keep the patient under supervision for proper dressings and after-care until recovery is complete. None of these factors except the patient himself is beyond the control of the surgeon, and it is to be borne in mind that the patient who in the early stages of his disease is intolerant of apparatus will also be impatient in the matter of after-care and should be handled accordingly.

All of our experience with bone and joint tuberculosis teaches us that a large percentage of good results may be obtained by conservative treatment when the diagnosis is made early and the treatment carefully carried out. It is hardly necessary to emphasize here the importance and ease of early diagnosis of joint tuberculosis and the simplicity of early treatment. It is unquestionable that careless diagnosis and ignorance on the part of some over-enthusiastic surgeons of the splendid results obtainable by efficient mechanical treatment prompt them to do operations of this kind which might better have been left undone. My own experience has been that equally good results may be obtained even in those patients requiring a minor surgical procedure, even in late cases, when it is combined with careful mechanical treatment and strict surgical after-care.

Some of the literature for the last few years urging radical surgery has done much harm because it has persuaded surgeons to undertake these operations who have neither proper facilities nor suitable surroundings in which to do the kind of surgery these patients then require. It is also true that many good general surgeons, having failed to obtain primary results following these operations, have allowed their patients to drift into less competent hands or even to do their own surgical dressings with the necessarily following mixed infection and chronic sinus.

Patients may recover from a large amount of joint damage under non-surgical treatment. The conclusions from my entire list of patients sufficiently emphasize the point that disability and deformity are much less in the patients not operated on.

In passing it may be well to mention that in this particular series there has been no death in any case in which the patient was not operated on, or in any case in which the patient had the first operation under our care, while there have been three deaths in patients previously operated on.

First National Bank Building.

ABSTRACT OF DISCUSSION

Dr. Leonard W. Ely, Denver: In some parts of the United States, what might be termed the accepted or standard treatment for a tuberculous joint is amputation. I think that Dr. Orr goes a trifle too far in the matter of adult joint tuberculosis. I have never seen a private case of adult joint tuberculosis that I could say was cured by conservative measures. I have seen the disease quiet down, and remain quiet for years; but it would then light up again. I think that possibly the reason for the failures in operations in these cases is a mistaken idea in regard to the object to be accomplished. If an adult joint is opened, scraped and drained, it will almost certainly become infected, and, instead of a comparatively simple disease, a serious condition will result. If we open the joint with the well-defined purpose of destroying it and getting bony union, I do not believe that tuberculosis can exist any longer in that locality.

Dr. Edwin W. Ryerson, Chicago: I agree with Dr. Ely that the cases should be demarcated accurately with regard to the age of the patients. I have yet to see an adult patient with a hip- or knee-joint tuberculosis recover without an operation and with a movable joint, and I have yet to see any case of adult hip-joint tuberculosis recover without operation, with any kind of a joint. The chief thing that struck me about Dr. Orr's roentgenograms was that while the patients had recovered without operation, most of them needed operation badly in order to get rid of the abduction deformity that was present. If an osteotomy after the Gant or Brackett methods had been performed, I think that all of them would have had more useful legs.

Dr. John L. Porter, Chicago: I wish to add my testimony to that already adduced in support of the opinion that tuberculous joints in adults do not do so well as those in children. During an experience of nineteen years I have seen several hundred cases of tuberculosis of the joints in adults; and I have seen few recover by ordinary conservative methods—that is, as completely as a child's joint would. I think that many adult tuberculous joints would recover from the symptoms, and, perhaps, show as good result, if operated on. In other words, I think that the mistake is made in many instances in not operating in the case of an adult, because infection is much more likely to be present in an adult than in a child. In the case of a man who is a wage-earner, for instance, and needs to return to work quickly in order to support a dependent family, I should advise operating, as I should not in the case of a child.

Dr. Emil S. Geist, Minneapolis: I should like to ask Dr. Orr to tell us the end-results in these cases of hip disease. I should also like to ask what he considers a good result, and further, what form of conservative treatment was employed in these cases.

Dr. John Ridlon, Chicago: I am rather surprised to hear the remarks of Dr. Porter and Dr. Ryerson. Their ideas are so different from the views that I hold. When I came to Chicago from New York, twenty-one years ago, I thought that it was true, as I had always been taught, that tuberculosis of the joints in adults did not do nearly so well as tuberculosis of the joints in children, but I soon learned that the contrary was the fact in my patients. I found more tuberculosis of the joints in adults in Chicago than I had found in New York, and I learned that tuberculosis of the joints in adults did better than tuberculosis of the joints in children in Chicago. I supposed that this was the experience also of the other men there; but these doctors have had a large experience in the Cook County Hospital, where they see the worst class of cases and where efficient treatment for more than a few weeks is not possible. I have always believed that an adult should be told the facts about operative treatment, and as to the long period that is likely to be required (three, five or even eight years, perhaps) for a cure by non-operative methods, with the possibility of obtaining a cure in a much shorter time by an operative procedure. The best treatment, however, for a tuberculous ankle or knee, and possibly also a hip, in an adult who is a wage-earner, is certainly an amputation; and I have done one or two amputations in thirty-five years. These patients do get well, but, as Dr. Ely says, you must not take the word of an eminent man, like Murphy or Ridlon, against that of Dr. Ely. You must see the results. I showed to the Central States Interurban Club in Chicago, a few months ago, three patients who had been cured. Since then, I have chanced on two other cases in adults, who had beginning abscesses, and were cured without deformity and without any evidence of their ever having had the disease. My experience is that tuberculosis of the spine is much more serious and is harder to cure in either a child or an adult than is tuberculosis of the hip or knee. I may be wrong in this, but if the spine can get well without operation and without deformity, the hip or knee can, in either the adult or the child.

Dr. Edwin W. Ryerson, Chicago: When I said that I had not seen a tuberculous joint in an adult recover without operation, I meant the joint, and not the tuberculosis. I have seen cases in which tuberculosis of the joint was cured, but not the joint. It all depends on the interpretation of the word "cured." If you mean by this word that the joint has returned to the normal, I have seen no cures in adults, other than the three cases of spinal tuberculosis that Dr. Ridlon showed at the interstate association. If he says that there is motion in these joints, there is.

Dr. Ridlon: I do not know whether there is or not.

Dr. Ryerson: Well, the tuberculosis is cured; but a cure of the tuberculosis in the joint, does not mean the return of that joint to normal. If such an interpretation is accepted, I have never seen a tuberculous joint in an adult cured, either with or without operation.

Dr. John L. Porter, Chicago: I am going to modify what I said a little differently from the way in which Dr. Ryerson modified what he had said. He hedged by saying that he meant cure of the joint, and not cure of the tuberculosis. I will not hedge a particle. I meant the cure of the disease. I said that tuberculosis of the joint in an adult is seldom and possibly never cured. Persons who have had the disease as young adults will sometimes come back when over 30 years old, showing evidences of the disease in the same locality as formerly. I have at present under my care a woman of 50, who had tuberculosis of the spine and, we believed, recovered five years ago; but she came back to me with the same focus, and also another one, four vertebrae lower. I have been impressed with patients who seemed to be cured, but were not, the patients coming back to me later in adult life with a recurrence.

No one, perhaps, has been so close to Dr. Ridlon as I have. I have worked with him and been his assistant. I do not believe that anyone has a higher opinion of Dr. Ridlon's diagnostic ability than I have; but I know that years ago we made more mistakes in diagnosis than we do now, and I think that many of the spines and hips that we treated then and that improved so quickly might not have been tuberculous, even though Dr. Ridlon made that diagnosis.

Dr. John Prentiss Lord, Omaha, Neb.: I have been associated with Dr. Orr in the work in Lincoln, and I have been a general surgeon for twenty-two years and orthopedics has been a part of my work. Inasmuch as the question of operation and non-operation is under discussion, I want to claim a little credit for the non-operative methods in the treatment of hip disease in the Nebraska State Hospital. We were able to announce in the last report that there had been no amputations. About one-third of our cases are tuberculous. Our patients number between 110 and 115 all the time. There has never been a resection in that hospital, and the only surgery that we do is to meet the surgical indications. There is no orthopedist, I believe, who will take exception to that. I have, however, seen orthopedic surgeons who urged, on the wrong side, I thought, that we did not meet the surgical indications as soon as they would in some cases of accumulations of fluid in and about the joints. My practice has been the same as that of the others who have spoken with regard to adult tuberculosis.

Dr. Porter: Do you treat adults there?

Dr. Lord: Occasionally, but not many. They are inconsiderable in number, as a matter of fact. What I say now is in regard to my general experience rather than to my experience in that institution; and that is, that after ordinary methods of treatment have been exhausted in an adult, and he is manifestly losing ground, it has always been my practice to do a resection of the knee, for instance, rather than to allow that man to go on and develop tuberculous osteomyelitis, which would perhaps subsequently necessitate operation. Then, the economic question in the adult is serious. We must do something for these people and enable them to work. We cannot treat them for from three to eight years, as we can a child. It is another proposition entirely.

Dr. Arthur Steindler, Des Moines, Iowa: I wish to mention a case of apparently complete recovery from Pott's disease in a young woman who was first examined by me three years ago. She had all the clinical symptoms of tuberculous spine, the boss of the gibbosity being the eighth dorsal vertebra. Reexamined three years later she had to all appearances a normal spine with no deformity and no restriction of motion. Bearing out what Dr. Porter has said regarding the latent intervals of hip disease in adults, I remember a case of reappearance of tuberculous hip trouble with all clinical symptoms not less than thirty years after the primary infection. Three cases out of my last series of cases of hip disease, treated by Lorenz' method of fixation and weight-bearing have healed with normal range of motion, but as these cases have been exceptionally mild and the bone involvement limited, I should hesitate in basing any preference of Lorenz' method on them.

Dr. J. D. Griffith, Kansas City, Mo.: I have had several cases of tuberculous hips in grown persons. Those cases that have recurred, I have made up my mind, were tuberculous; while those that did not recur, were not tuberculous. I probably made a mistake in diagnosis.

Dr. Fred H. Albee, New York: A point that has not been mentioned should, I think, be emphasized strongly, and that is, what the pathologic condition is. When a tuberculous joint has become cured relapse is extremely rare if it is a bony fixation; but if it is a fibrous union, a fibrous encapsulation of the tubercle bacillus, it is doubtful whether it will relapse or not. Undoubtedly, in adult tuberculosis, relapse does frequently occur. I also wish to emphasize the point that treatment of monarticular tuberculosis in children and that of monarticular tuberculosis in adults should be looked at from different points of view. In adults, operative methods should be employed; in children, conservative treatment.

Dr. Edward A. Rich, Tacoma, Wash.: We cannot look on the treatment of all tuberculous joints in any general way, saying that all these diseased joints everywhere in the body should be treated either conservatively or surgically any more than we could advise the treatment of all pulmonary diseases or of the exanthemas by hard and fast rules. It is true that there is a vast difference between the course and outcome of tuberculous arthritis in the child and in the adult. Also, it appears that the various joints in the same human body demand different courses of treatment to attain the best results in each one of them. Surgery seems to be most urgent in the region of the ankle. It is often our choice in the knee, while in the hip and spine the tuberculous process gives better results if treated conservatively. In taking up the treatment of joint tuberculosis, I think that it would be better to consider the joints individually rather than collectively, so great is the variance in the mode of treatment of the respective joints.

Dr. Willis C. Campbell, Memphis, Tenn.: The question of operation, it seems to me, depends a great deal on what you do and on the time when the operation is done. I do not believe that in late cases, after there is a considerable destruction of the bone about the joint, operation is of much value in accomplishing ankylosis. Early in the disease, in adult cases, if a small area of bone is removed (just enough to produce ankylosis), I think that good results can be accomplished. I have done several operations of this kind, but it is too early yet to say what the end-result will be. My service in the charity department is largely among negroes, and I find that, if something is not done for them early, no result is ever accomplished and amputation is inevitable. I think, therefore, that something should be done in order to see what can be accomplished by an operation—not for the removal of the disease, but for the purpose of producing ankylosis. In discussing operative and nonoperative treatment, most of us have the idea of the old type of operation—excision at the knee. We never do that. I do the Albee operation on the hip, removing a small area from the superior surface of the head of the bone and the corresponding area in the acetabulum. At the knee, I remove as small an amount of bone as possible, so that no deformity is produced by a lack of bone.

Dr. Henry Ling Taylor, New York: It seems to me that we should emphasize a few points more than they have been emphasized. In the first place, is there anyone in the United States who is doing major operations freely in the early stages of joint tuberculosis in children? If so, I should like to know of it, and say that I think it is unjustifiable. In adults, the problem is different. The matter of major operations for joint tuberculosis in children has been tried out extensively and dropped. Dr. Sayre tried it and abandoned it. It has been carried out in England by Wright, of Manchester, and abandoned; also in Germany. It has been abandoned everywhere that it has been tried. The results of the conservative treatment of these cases are so favorable in children that there is no reason for trying a radical operation. In adults, we have different pathologic conditions, different economic conditions, and, perhaps, different conditions of prognosis. The necessity in them for a radical operation in cases of tuberculosis is in proportion to the nearness of the disease to the end of the extremity, at least in the leg. When the lesion is in the spine, we cannot do a radical operation. I have seen spinal tuberculosis in adults entirely cured by conservative treatment, however; and I think that that is the only management open to us in these cases, except the Albee operation and the other methods of ankylosing the spine. The extirpation of the focus in children has been tried in the hip extensively by Tunstall Taylor, and abandoned; but we have good opportunities to try it in the knee and the ankle. These operations are sometimes advisable. Every once in a while, there is a case with a distinct focus that you can get at before the joint is involved, as proved by the pathologic findings after the operation. I look for these cases; and when I find them, I operate, and obtain good results. Another reason for operating in children is to save their lives. Sometimes the cases are so bad that you have to do something. Then you operate and extirpate the disease, either with an amputation or, if possible, a resection. Recently an English surgeon, Mr. Bennett, of Birmingham, told me that he has gone back to a modified excision of the knee in children, and thinks highly of it. He does an arthrodesis of the knee, shaving off the cartilage and a thin layer of bone, and he says that he does not get the bad results that we used to get in excisions in children. In adults, we can operate freely. If we have to sacrifice most of the joint, we do not have to sacrifice anything that has not already been sacrificed. Even if motion is present, it will not be when the case is finished; or be anything but a detriment, if it is present. The object then is to ankylose the joint.

Dr. Reginald H. Sayre, New York: I should like to put myself on record as practically agreeing with everything that Dr. Taylor has said, except that he seems to be under an erroneous impression in regard to my father's stand in operating on early tuberculosis. When he first excised hips, he was not allowed to operate on any but persons who were almost dying, or who were full of sinuses and certain to die, if left alone, in a few weeks. The general consensus of opinion at that time was much opposed to it. In his writings, my father said: "When this operation is regarded as justifiable by the medical profession, they will have progressed far enough in the ability to make accurate diagnoses that the operation will cease to be of use; for the cases will not be allowed to go on until they require resection of the joint."

Dr. Newton M. Shaffer, New York: I have listened with a great deal of interest to this discussion, because it brought back to my mind my old experience with Dr. Taylor and Dr. Sayre, and my own experience in the Orthopedic Hospital and the Children's Hospital. I agree with what seems to be the consensus of opinion; and that is, that conservative treatment should be applied in almost every instance of tuberculous disease of the joints of the lower extremity. I have amputated in only one case; and I think that that was a mistake. Of course, we all know that excision of the joint is inadvisable; and I wish to repeat what I said at the first meeting of the American Orthopedic Association, that excision of the hip-joint is impossible. That is, we can decapitate the femur; but the acetabular wall is so thin that excision of the hip should really be called decapitation of the femur. I did one or two of these operations in St. Luke's Hospital. Dr. Sabine and I selected some incipient cases and excised them, only to set up an irritation. I have a rule that I regard as invariable for the treatment of cases in the knees of adolescents and adults. I am simply repeating what others have said, but I wish to confirm their opinions. In an adolescent shop-girl or a boy going to school, I would advise against spending the long period of time required to secure the result by conservative measures. Therefore, I almost uniformly recommend an excision in these cases. When it comes to the spine, Dr. Griffith's statement that he makes his diagnosis in such cases after the result is obtained, classifying them as nontuberculous or tuberculous according to what is found, is interesting. We all know that spinal disease often does cure itself. I have seen a good many cases of cure with practically no treatment. It was, I believe, the original idea that first suggested the use of spinal support that as soon as the ribs in Pott's disease reached the pelvis, the disease began to cure itself, owing to the support obtained from the ribs resting on the pelvis. I have seen cases of cured Pott's disease of tuberculous origin. I know that the patients were cured, because they remained well for years. The liability of relapse in the knee or hip of the adolescent is great. Only a year ago, I saw a patient that I had treated fifteen years ago, at the Orthopedic Dispensary. She left the dispensary with a fairly flexible knee, but she now has a worse case than she had when I first saw her. She will not submit to excision, but I quite agree with the others who have spoken that this would be the best treatment for the case. As some of you know, I was once abused for not advising operative interference for cold abscess, but conservative measures. That has now become the accepted form of treatment.

Dr. H. Winnett Orr, Lincoln, Neb.: I have deliberately taken the attitude on this question of arguing against the double standard of treatment for adults and children with joint tuberculosis. The differences in pathology between this condition in children and in adults are, I think, not so great as has been suggested. So far as my own series of cases is concerned, five of these were in adults, three of whom have remained well for a year or more, without operation. One of these patients, with a tuberculous knee, was 26 years of age; one, with tuberculosis in the spine, 32; and the third, with tuberculosis of the wrist, 48. How long they will remain well, I cannot say. With due apologies to Dr. Porter, I would say that while they may not be tuberculous, they have every indication of being so. I regard a good result in these cases as being not necessarily the restoration to function of the involved joint, but a return to function of the individual, which I consider to be much more important. No one maintains that in any considerable number of the cases, with or without operation, there will be a return of the joint to the normal; but in these cases that I have studied, the patients were much worse off after operation than patients of the same class without operation.

Another thing that I wish to say is, that the fact that many of these patients, adults who have been treated conservatively, do not do so well as children is partly because they are usually not well controlled. This is mostly, of course, the fault of the patients; but if the adults were as well controlled mechanically as children practically always are, they would do better, and perhaps more frequently recover than they now do.

With regard to methods of treatment, I would not care to say much, except that I have paid more attention to fixation than to any other element in the treatment, especially with adults whom you cannot keep in bed and to whom we cannot apply the methods that are used so extensively in the cases of children.

THE WHITMAN OPERATION FOR TALIPES CALCANEUS PARALYTICUS *

JOHN PRENTISS LORD, M.D.
OMAHA

During the last year I have done the Whitman operation twenty times on eighteen patients, and the immediate results have been so gratifying that I am most enthusiastic in indorsement of the operation. At a clinic given before the American Orthopedic Association in New York, May, 1912, I was privileged to witness the performance of the operation by its author. Prior to this time its full technic had not been sufficiently comprehended to justify its adoption. But my indifferent results had stimulated my special interest. The results in very numerous cases there exhibited were convincing. A personal communication from Professor Whitman states that few, besides himself, do the operation in New York. It is my observation that too few surgeons employ this method of radical relief, and I, therefore, desire to aid the cause of its popularization through the report of the results of my experience.

The operation has a wider range of application than for calcaneus alone and may be modified by various tendon transferences to meet special indications.

The primary indication in extreme cases of paralytic deformity is the establishment of stability. The secondary indication is the utilization of available muscle power for a balanced action and maximum of function; these attained, there is little or no tendency to a relapse of the deformity.

The fault of the operations which deal with muscles and ligaments only, in cases inherently weak because of extensive muscular deficiency from paralysis, is that the soft parts yield to the subsequent strain put on them and relapse in greater or less degree, unless, perchance, a careful after-supervision and the use of artificial supports is continued indefinitely. But recurrence is inevitable in many, unless a more distinctly radical operation is done. This is afforded in the Whitman procedure, which was primarily devised by him for extreme calcaneus paralyticus. It is now demonstrated to be useful in other varieties of talipes characterized by great instability. It should also be used in patients destined to develop the deformities for which it is indicated. This is pursuant to a distinct tendency now existent to do definite things for the crippled and deformed, instead of palliating or temporizing for months or years, conditions which should, if possible, be permanently corrected at the outset.

The Jones operation for talipes calcaneus has a more distinct indication in the fully developed calcaneus deformity in the adult foot. It is a two-stage procedure and has been little used in this country.

DESCRIPTION OF OPERATION

The Whitman operation as described by its author is in abstract: "astragalectomy, arthrodesis, tendon transplantation and backward displacement of the foot." The following is the description in detail:

A long, curved, external incision is made passing from a point behind and above the external malleolus below its extremity and terminating at the outer aspect of the head of the astragalus. The peronei tendons are then divided just in front of the malleolus, completely separated from their sheaths and drawn backward. The lateral ligaments are next divided and the joint is opened. The interosseous ligament is cut through and the foot is twisted inward. When the attachments to the navicular have been freed the astragalus may be removed. A thin section of bone is then cut from the outer surface of the adjoining os calcis and cuboid, and on the inner side the calcaneonavicular ligament is partially separated from its navicular attachment. The lateral ligaments are freed from the two malleoli and the cartilage is removed from their inner surfaces. The foot is then displaced backward as far as possible so that the external malleolus may cover the calcaneocuboid junction, while the inner is forced into the depression behind the navicular, the malleolus being changed in shape if necessary to assure accurate adjustment. Finally, the peronei tendons are drawn through an opening in the tendon Achilles, or they are sewed to it and then reunited to their respective tendons with strong silk sutures. The wound is closed without drainage, and the foot is then held in an attitude of equinovalgus by a plaster bandage fixing the leg at a right angle to the thigh. The object of the removal of the astragalus is to assure stability and to prevent lateral deformity by placing the leg bones directly on the foot. Incidentally it restores the symmetry of the foot. The object of the backward displacement of the foot is to direct the weight on its center and thus to remove the adverse leverage and to prevent dorsal flexion by direct contact of the tarsal bones with the anterior margin of the tibia. The tendon transplantation is an additional safeguard against deformity and of service in restoring function. In about three weeks the long plaster is removed and a short one is substituted, the foot being fixed in moderate equinus by a cork wedge beneath the heel. On this the patient is encouraged to walk. The plaster support may be used with advantage for six months or a light brace may be substituted for it. Eventually the brace is discarded and a shoe with a cork inner sole adjusted to the attitude of plantar flexion is substituted.

Whitman says that he "usually thickens the sole one-fourth inch on the outer border to guard against the inclination toward varus. If all the details are properly carried out, particularly the backward displacement and adjustment of the malleoli, the result is a symmetrical foot, a movable ankle-joint, and yet a secure support that eventually enables the patient to dispense with the braces."

SUMMARY OF OPERATION

In brief, the Whitman operation for talipes calcaneus consists of:

1. The removal of the astragalus.
2. The freeing of the malleoli and the preparation of a new articulation.
3. The transplantation or resuture of the peronei tendons.
4. The backward displacement of the foot.
5. The fixation of the foot in equinus.

After-Treatment.—A fixation plaster is kept in position for about four weeks, then an ambulatory plaster is used for about five months.

Results.—Cavus and lateral instability are corrected, the backward displacement checks dorsal flexion by direct contact and by change in leverage, and the power of the transplanted muscles is made more effective.

OBSERVATIONS

This operation is called radical because it restores symmetry and assures stability. It is the only effective procedure for an advanced deformity and it is also indicated in early cases as a preventive of progressive deformity.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

I have done many astragalectomies, arthrodeses, tendon transferences and silk implantations for these various paralyses of the feet during several years, but not until I had seen actual results from the Whitman procedure was I willing to adopt it.

The failure of many tendon transferences and silk implants is due to too much dependence being placed on weakened and easily over-stretched muscles and insecure silk attachment, whereas, if the midtarsal joints are ankylosed by arthrodesis the transferred muscles will not yield to overstrain and will serve a beneficial purpose. In the extreme cases the Whitman operation will be found to give greater stability because one articulation, the tibio-astragaloid, is eliminated, hence mobility is lessened. Feet which have had the Whitman operation performed on them do not wobble or roll over, nor do they show a tendency thereto.

Many of the relapsing cases of paralytic talipes equinovarus have by previous forced corrections had the external malleolus forced backward until the fibula is almost beside the Achilles tendon. The tibio-astragaloid joint is much too far backward to allow of a sufficient degree of stability to the foot. The few remaining extensors are under too great a handicap to control such a foot. Tendon transferences alone under such circumstances are failures, or, at least, disappointing. Supplemented by arthrodesis the results are better, but, done early, arthrodesis is not of lasting benfit because too free motion is in time established. It is my opinion that the indications are not so well met by any of these procedures as by the Whitman operation, modified as necessary by tendon transference and silk implantation. In the Whitman operation weight-bearing is farther forward and lateral motion is eliminated. The motion is adequate and the foot is stable. Without the overload otherwise existing, the well utilized transferred muscle power may be adequate to give a fair degree of extension for the toes.

The overstrong calf muscles may be so divided and transferred as to control the inherent tendency to deformity. Thus for many weak, deformed and unstable feet the modified Whitman operation would also seem to afford the maximum operative relief.

Cases of extreme paralysis with a potential deformity, are suitable for this treatment. The feet destined to develop the various forms of talipes for which this procedure is subsequently indicated may be operated on before the exaggerated conditions are developed, and thus prevent their development. By these means, therefore, the long discouraging course of less radical procedures and the attendant anxiety of the parents and surgeons may be avoided, in my opinion, as is also claimed by Whitman, whose efforts to popularize his operations have not been so successful as their merits warrant. The restoration of contour, the fixation and the early restored function are all in its favor. Most of these patients resumed the use of their feet within three or four months and their ultimate permanent improvement is quite fully assured. The time is still too short in the later cases, however, for final conclusions.

On further study of the cases I am free to admit that in some of the earlier ones improvement could have been made if later and more mature experience had been available. The typical or stereotyped operation is not to be adhered to, because indications vary, especially when the operation is performed to ameliorate conditions other than the one for which the operation was originally devised.

501 Paxton Building.

ABSTRACT OF DISCUSSION

DR. CHARLES A. REED, Minneapolis: I had the pleasure of assisting Dr. Whitman in doing this operation fifteen or twenty times and have watched the results in the patients as they returned to the dispensary of the Hospital for Ruptured and Crippled. The results are as satisfactory as are obtained in the treatment of any other form of deformity with which I have had to do. I have used it in my practice a number of times since. I should like to mention one feature, and that is that the displacement of the leg forward on the foot may look as though it were complete at the time of operation, and then as it heals it often seems to slip back. The cases in which the operation was not fully successful were those in which the forward displacement of the tibia was not complete. All the cases in which I have done this operation have been cases of talipes valgus rather than varus. I have never realized that it was indicated for varus deformity; but it certainly is satisfactory in valgus, which is a more difficult deformity with which to contend.

By shortening the tendons it is often possible to obtain good functional results even in those cases in which the muscles are practically all paralyzed because the result is a firm fibrous union.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have seen a great deal of the work of Dr. Whitman and of his results. His results seem to be exactly as Dr. Lord has told us. I have done the operation five or six times, and, in every instance, with great success. I feel that the operation has a wider range of usefulness than is generally considered.

All my cases have been valgus cases, with the exception of one, which was a varus case. There are some points in doing the operation that are important and interesting. Dr. Lord did not go into the details. One of these is holding the foot in exactly the proper position, displacing the tibia backward between the malleoli, and at the same time holding the foot in a moderate equinus position. Many of the failures in the operation are, I think, due to the fact that the foot is not held in the proper position at the time of operation; the actual slipping probably occurs then, and not later. I have had absolutely no trouble in my few cases. The parts were all in good relation when the cast was removed and have remained so. The oldest operation has been done just two years at the present time, and the result is just as good now as it was at first. The special indication for the operation is when there is only paralysis of the leg below the knee. In these cases, it gives a good, stable foot, and one that is elastic. It has the advantage over arthrodesis in that the patient has elasticity and has not the discomfort in walking on uneven ground that is experienced by those on whom arthrodesis has been performed.

DR. JOHN PRENTISS LORD, Omaha: I am glad that Dr. Campbell brought out the importance of the equinus position in doing this operation. We have been particular about this, and the equinus position has been greatly exaggerated. It is important, however, to bear in mind that it is an abnormal position, one that you would not care to have permanent; and to be especially careful to modify the position to the final degree desired, at the three-week's period, when the initial cast is removed. It is to be borne in mind that this is highly essential; because one of the chief features of the operation is the securing of an anterior position to the joint. I think that one reason for the failure of other operations of all kinds is the fact that the foot has been so unstable that the enfeebled muscular power and laxity of the ligaments could not be expected to give a firm foot. The importance of stability is a great factor, and I think that this is the secret of the indication for the operation. We have heard a great deal about the unsatisfactoriness of muscle transference, silk implantation and all that sort of thing. It is because too much is expected from that kind of support. If you once render the foot stable and put the bony framework into position to do its part with the least amount of strain on the inherently inadequate soft parts, you will then comprehend the real advantage of the Whitman operation; because it does give stability, it puts the muscular leverage to the greatest advantage. While speaking of this, I wish to mention the great necessity for giving particular attention to this when you depart from the original indication for the Whitman operation and do that operation for conditions in which the muscles in the posterior part of the leg are overacting. If my work is to be criticised, I would say that I have subjected it to the criticism that I had *not given sufficient* consideration to the fact of muscle power in the calf muscles, particularly when an overadvantage is given them by dislocation of the foot backward. We should therefore redistribute the pull on such feet.

I did not mention, in considering the after-care, that these patients always have short legs, and that you have still further shortened the foot and leg by the elimination of the astragalus. It is highly essential, therefore, that one shoe should be slightly raised. The size of the foot is reduced, so that it can be placed in a large shoe with practically all of this extension let into the inside; so that the deformity is not conspicuous. These patients, however, should not be expected to have their feet firm at a right angle. They should be made to maintain a slight equinus position.

THE RELATIVE VALUES OF THE ROENTGEN RAY AND THE CYSTOSCOPE, IN THE DIAGNOSIS OF VESICAL CALCULI *

Edwin Beer, M.D., New York

The surgeon who sees a great deal of bladder material is well aware of the fact that roentgenoscopy does not regularly demonstrate vesical calculi. During the past two years I have had this experience so frequently that I have deemed it my duty to review all the cases of bladder stones in which I have had a roentgenogram taken and to place them in a brief paper before the medical public. I have considered this advisable, as the average internist is very liable to be satisfied with a negative roentgenogram in excluding the presence of a calculus in the urinary bladder.

The Roentgen-ray work done on these cases (by Dr. Jaches) has been of the highest quality; therefore the fact that so many of the cases showed no stones can in no wise be attributed to the radiographic work. It is only fair to state that the Roentgen-ray work was of the routine type, one plate for the kidneys and one for the pelvic portion of the urinary tract. I believe that the following array of cases will show rather conclusively that even plates so carefully made will miss stones in the bladder with considerable frequency.

During this period I have had twenty-two cases of vesical calculi radiographed. In only six cases did the calculi show in the roentgenogram. On the other hand, in every case the diagnosis was made with the cystoscope. Of the sixteen negative cases, the calculi were examined chemically in nine cases by Dr. S. Bookman. These nine cases showed the following chemical composition:

Case 1: Ammonium urate with small amounts of calcium carbonate and ammonio-magnesium phosphate.

Case 2: Uric acid and traces of calcium and magnesium phosphate.

Case 3: Ammonium urate.

Case 4: Uric acid and traces of calcium and magnesium phosphate. (This was a renal calculus that had wandered into the bladder.)

Case 5: Sodium and potassium urate and uric acid.

Case 6: Uric acid and ammonium and sodium urate.

Case 7: Ammonium urate.

Case 8: Ammonium urate.

Case 9: Uric acid and traces of calcium oxalate.

In these sixteen negative cases, nine patients had prostatic adenoma as well.

From these data it is evident that the cystoscopy is a much more reliable diagnostic aid in vesical calculi than roentgenoscopy. How frequently similar stones escape the radiographic examination in the upper urinary tract, I would not venture to say, though such cases as No. 4 are probably not so rare as most surgeons at the present day believe. Perhaps with improvement in technic and newer methods, which will coat the calculi with a layer of salts that does not allow the rays to traverse the modified calculus with equal ease, it may become possible to demonstrate all of these uric acid and uratic calculi both in the upper and in the lower urinary tracts.

48 West Seventy-Fourth Street.

A STREPTOCOCCUS PRODUCING SYMPTOMS OF CHOREA IN A DOG *

George F. Dick, M.D., and T. Rothstein, M.D., Chicago

The streptococcus spoken of in this report was isolated from the throat of a patient with a case of chorea of five years' duration. Similar organisms have been isolated from a number of cases of more acute chorea. A detailed report will be published in the *Journal of Infectious Diseases.*

The streptococcus as grown on blood-agar forms a heavy, dirty-white growth with a border well raised above the medium and a wide zone of hemolysis. It grows aerobically and anaerobically equally well and grows on all ordinary media. It ferments milk with slight acid production but no coagulation. It does not ferment dextrose, lactose, mannite, inulin or saccharose. As grown on the surface of agar-slants, the streptococcus is a Gram-positive organism occurring in irregular groups and short chains with such an abundance of smaller Gram-negative forms as to give the impression of a mixed culture. In milk it grows in extremely long chains, and staining fails to show a capsule.

A dog which was injected intravenously with the growth from four agar-slants developed choreic movements within twelve hours.

122 South Michigan Avenue.

A SCARLATINIFORM RASH FROM ATOPHAN †

W. W. Herrick, M.D., New York

Assistant Physician, Roosevelt Hospital

The patient, a woman aged 38, was admitted to the Medical Service of Roosevelt Hospital May 30, 1913, suffering from an acute polyarthritis involving knees, ankles, wrists, cervical spine, the temporomaxillary and many interphalangeal joints. The maximum temperature was 103. There was no history of previous attacks nor was there any cardiac involvement.

Drug treatment was begun with large doses of sodium salicylate, 240 grains being given each twenty-four hours, from May 30 to June 4. The temperature fell to 101, but pain was not relieved. June 4 the sodium salicylate was discontinued and atophan 15 grains given three times a day to June 7, when the same dose was given every four hours. This was continued until June 11, when the dose was made 7½ grains every four hours. Pain was relieved and the temperature fell to 99.

June 13 there was a sudden rise of temperature to 103 with headache, vomiting and prostration, all without return of joint symptoms. Within three hours a rash appeared on the chest and neck, spreading thence to the remainder of the trunk and the extremities, but not to the face or scalp, which remained free from the exanthem. This rash was at first a punctate erythema which later by coalescence of the thickly placed spots became diffuse on the chest, while preserving a more macular character on the abdomen and extremities. The mucous membranes were not involved. Atophan was immediately discontinued and within forty-eight hours the eruption faded, disappearing after three days. This rash was strikingly like that of scarlatina both in appearance and distribution. There were, however, no throat or other symptoms to suggest this disease.

---

* From the Genito-Urinary Surgical Service of the Mount Sinai Hospital

* From the Memorial Institute for Infectious Diseases, Chicago.

† From the Medical Service of the Roosevelt Hospital.

As a matter of experiment, on June 16, atophan 45 grains was given within twenty-four hours and was followed by a chill and a sudden rise of temperature to 103, these symptoms subsiding on again discontinuing the drug. There was no skin rash at this time.

So far as I can discover no instance of skin eruption from atophan has been reported. Such effect is doubtless due to the quinolin nucleus of the 2-phenylchinolin-4-carbonic acid and is therefore analogous to the rashes observed in certain individuals after the administration of quinin. Consequently one may well expect to meet with occasional erythemas and urticarias from the use of this drug. Our own patient was given quinin at a later time and showed no evidence of idiosyncrasy.

49 East Fifty-Third Street.

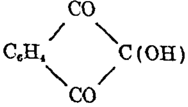
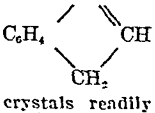
A Simple Method for the Relief of Ordinary Fainting.—While attending St. Peter's Hospital in London in 1899 I was impressed with a simple procedure in daily use for the relief of this condition. It was the custom of the surgeons at that time, Mr. Reginal Harrison, Mr. E. Hurry Fenwick, Mr. P. J. Freyer and Mr. F. Swinton Edwards, to pass bougies and sounds with the patient standing. The many patients would form themselves in a long line and occasionally one of them would become faint, sometimes even before the instrument was passed. It was the custom to have a vacant chair beside the surgeon who, when he noticed the condition of the patient, would have him seated in the chair, and the surgeon or his assistant would press the patient's head down between his (the patient's) knees, thereby lowering the head below the trunk, and by forcibly flexing the head on the chest retard the return circulation and thus relieve the anemia of the brain. Holding down the head for a minute is sufficient. I have seen this done many times and since then I have done the same and have thereby saved myself much annoyance. If at the minute the patient shows the first sign of becoming faint the head is pressed well down between the knees, it will be unnecessary to use the horizontal decubitus. This method works beautifully in a crowded room or car.—John A. Hawkins, M.D., Genito-Urinary Surgeon to South Side Hospital, Pittsburgh, Pa.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

NINHYDRIN.—Triketohydrindenhydrate.—Ninhydrin is phenyl-1,2-triketo-cyclopropane hydrate  $C_6H_4\left<\begin{matrix}CO\\CO\end{matrix}\right>C(OH)_2$, a derivative of inden (phenyl-1,2-cyclopropene)  $C_6H_4\left<\begin{matrix}CH\\CH_2\end{matrix}\right>CH$

Ninhydrin occurs in the form of colorless crystals readily soluble in water. When heated it becomes red at 125 C., swells at 139 and melts at 239-240 C. The aqueous solution colors the skin violet and reduces Fehling's solution. When heated to the boiling point in aqueous solution it gives a blue color in the presence of protein bodies or amino acids derived from them which have the amino group in the alpha position in relation to the carboxyl. It gives this reaction with compounds that no longer respond to the biuret reaction.

Actions, Uses and Dosage.—Ninhydrin is not employed therapeutically. It is used as a reagent for determining the presence of albumin, peptone, polypeptids, and amino acids. This test is especially applied to demonstrate the presence in blood serum of specific proteolytic ferments, especially in the diagnosis of pregnancy, according to the method of Abderhalden.

10 c.c. of the material to be tested is mixed with 0.2 c.c. of a 1 per cent. aqueous solution of ninhydrin, the mixture heated to the boiling point and kept boiling exactly one minute. The presence of amino acids or their protein compounds is indicated by a distinct blue color of the liquid.

The biologic test for pregnancy according to Abderhalden is carried out as follows:

About 1 gm. of coagulated placental tissue is boiled with ten times its volume of water, and the water poured off and this treatment repeated until the liquid contains nothing which will give a reaction with ninhydrin. When it no longer responds to the ninhydrin test it is placed in a diffusion cell with 0.65 c.c. of blood serum free from hemoglobin, and the mixture is allowed to diffuse into 20 c.c. of distilled water. Both the dialysate and the liquid in the cell are covered with a layer of toluene. The dialysis is continued for from twelve to sixteen hours in the incubator at a temperature of 37 C.

To 10 c.c. of the dialysate 0.2 c.c. of a 1 per cent. aqueous ninhydrin solution are added, and the test performed as described above. If a blue color results the serum has been derived from a case of pregnancy.

Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent or trademark.

PLACENTAPEPTON.—Placentapepton is a preparation of peptone derived from the placenta and employed for the purpose of the optical test for pregnancy according to Abderhalden.

Placentapepton is a yellowish powder, soluble in water and having the properties of peptone.

Actions, Uses and Dosage.—One c.c. of the serum to be examined, which must be absolutely free from hemoglobin, is mixed with 1 c.c. of a 5 per cent. solution of placentapepton in 0.9 per cent. solution of sodium chlorid. This mixture is placed in an Abderhalden polarization tube of 2 c.c. capacity surrounded with a water jacket. The rotation is immediately determined. The polarization tube is then placed in the incubator and examined at intervals of two hours at first and later at longer intervals for the amount of rotation. This test of rotation should be continued not longer than forty-eight hours. Only variations of 0.05 degree are to be regarded as essential changes in the rotatory power. Placentapepton cannot be employed in the diffusion test for pregnancy.

Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany (Farwerke-Hoechst Co., New York). No U. S. patent or trademark.

ANTIRABIC VACCINE.—Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Rabies Vaccine.—Rabies vaccine is prepared according to the method of Pasteur and is a complete treatment, consisting of 25 doses, to be administered during 21 days. Each day's injection is shipped in a vacuum bottle. Complete description and directions accompany each outfit.

NON-PROPRIETARY BRANDS OF ACCEPTED ARTICLES.—Having been found to comply with the standards adopted, the Council voted that the following brand of an accepted article be listed:

Copper Citrate, Merck.—Manufactured by Merck & Co., New York.

Transfer of Agency.—The biologic products formerly manufactured by the Sophian-Hall-Alexander Laboratories, Kansas City, Mo., (described in The Journal, A. M. A., April 5, 1913, p. 1074, and April 19, 1913, p. 1227, Sept. 6, 1913, p. 771) are now manufactured and sold by E. R. Squibb & Sons, New York.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, OCTOBER 11, 1913

THE RELATION OF NUTRITION TO TRANSMISSIBLE TUMORS

If one may judge by the direction which experimental work in relation to the cancer problem has taken in recent years, the greatest promise of any considerable degree of success in unraveling the secrets of these neoplasms lies in the study of the transmissible tumors of animals. The considerable experience now available in many laboratories in diverse parts of the world shows that conditions are attainable in which these tumors can be brought to quite a constant degree of virulence as measured both by the percentage of positive inoculations and by the rate of growth on a given lot of animals. But when the same growth is tried on different strains of test animals in remote places the apparent virulence of the tumors shows variations which have hitherto largely baffled all attempts at a rational explanation. We are told with respect to the so-called spontaneous tumors of mice that a breeder may find a large number of tumors among his animals, but that they can rarely be transplanted successfully. A large number of the subcutaneous adenocarcinomas are not transmissible even to mice of the same strain.

Such facts raise the question as to the underlying reason for the variations in susceptibility or immunity of the host. The incidence of sex, age and heredity has been taken into account by different investigators. By some it has been believed that when a nutritive tax is put on the organism, as happens during pregnancy or when a person is ill or undernourished, conditions might be found relatively unfavorable for growth in general, the neoplasm included. Against this may be arraigned the view that precisely under conditions of poor nutrition is immunity at a lower ebb. In so far as pregnancy is concerned, we are reminded that the conditions then obtaining may be expected to stimulate rather than retard growth.[1] The situation with respect to the possible bearing of age and heredity is no less confused.

The foregoing considerations involve in essence what may be termed the internal conditions modifying growth, in contrast with the external factors, such as light, climate and diet, which are independent of the individual involved. Most of the work on the influence of diet has, until quite recently, been of a desultory character. An unfavorable influence of poor nutrition brought about by intercurrent disease has, it is true, been reported; although instances of actual partial starvation have not yielded the same outcome.

Sweet, Corson-White and Saxon[2] have followed a somewhat new path in the study of the relation of nutrition to transmissible tumors. Their plan was based on the feeding experiments of Osborne and Mendel.[3] The latter investigators have shown that it is possible to maintain rats for considerable periods of time on diets composed of isolated foodstuffs, including fats, carbohydrates, inorganic salts and a single protein. The possibility of growth in contrast with the mere maintenance of animals on such dietaries is dependent on the nature of the protein fed. Thus they were able by special selection of the ingredients of the diet to maintain young (ungrown) animals in health for long periods without any evidence of increase in size. In other words, their animals were not starved in any sense except a very specific one—certain substances essential for satisfactory growth were lacking. Sweet and his colleagues at the laboratory of the American Oncologic Hospital in Philadelphia have applied this newer knowledge of the unlike conditions governing nutrition in growth and maintenance, respectively, to the behavior of transplanted tumors. They asked themselves: Regardless of whatever may be the ultimate cause of cancer, can a cancer grow in a body rendered incapable of normal cell growth?

Inoculated rats and mice still capable of growth were placed on the Mendel-Osborne stunting diet, and others on the customary mixed food. The results are of surprising interest. The number of successful transplantations was remarkably reduced by a diet which prevents normal body growth. The rate of growth of the tumors which do "take" is much slower on the stunting diets than on the control food, and the number of retrogressions is high on such a diet. The effect is not only exerted on the reciprocity of the host, but retrogressions also occurred on the Mendel-Osborne diet, though not among the control animals.

The clear-cut demonstration of the possibility of influencing the growth of transplantable tumors by proper diets opens up new avenues of research and encourages a continuance of the studies begun in this direction.

THE OPEN-AIR TREATMENT

It sometimes happens that when the current explanation of a phenomenon is disproved the impression is produced in some minds that the occurrence of the phenomenon itself is denied. Something of this sort has taken place with reference to the recent work on the physiologic factors involved in room ventilation and the open-air treatment. There is reason to believe that the general public is still in some confusion on this point. It was for a long time supposed that the bad effects of close and crowded rooms were due to chemical impurities in the air, to excess of carbon dioxid or to organic poison, or else to oxygen impoverishment. No one of these explanations is tenable in the light of recent experiment. On the contrary, all the ill effects observable in crowded rooms seem to depend on the stagnation, high temperature and moisture-content of the air; in a word, to those factors that produce a disturbance of the normal heat regulation of the body. If the temperature and moisture are kept low, human exhalations may be allowed to accumulate without noticeable effect to a point far above that ordinarily observed in the most "badly ventilated" room. On the other hand, if the experimenter breathes "pure" outdoor air through a tube but allows his body to be confined in a small chamber where temperature and moisture are at a high point, he will soon have all the symptoms commonly attributed to "breathing foul air."

---

[1] Rous, P.: Jour. Exper. Med., 1911, xiii, 248.

[2] Sweet, J. E.; Corson-White, Ellen P., and Saxon, G. P.: The Relation of Diets and of Castration to the Transmissible Tumors of Rats and Mice, Jour. Biol. Chem., 1913, xv, 181.

[3] Osborne, T. B., and Mendel, L. B.: Beobachtungen über Wachstum bei Fütterungsversuchen mit isolierten Nahrungssubstanzen, Ztschr. f. physiol. Chem., 1912, lxxx, 307.

To substitute this explanation, which is wholly in accord with recent experimentation, for the once-current theory that expired air has a toxic property is not to question the value of fresh air or to decry the open-air treatment for tuberculosis. On the contrary, we are in a much better position to understand in what way cool air and especially moving air produces marked invigoration and improvement of the general health. When the body loses heat at a suitable rate, heat production must also proceed at a certain rate in order to compensate for the loss, and metabolism is increased at equal pace. Increased metabolism means improved quantitative and qualitative assimilation of food; and, as Hill has pointed out, a larger consumption of food means a wider choice of "building-stones." The action of cool, moving air on the skin and cutaneous nerves is probably in itself beneficial. Moreover, it impels to exercise, and an increased activity on the part of the body increases metabolism.

On the other hand, exposure to the stagnant atmosphere of confined places allows the skin to become surrounded with an envelope of warm air which prevents the body from losing heat at a proper rate. The nerve-endings of the skin are not stimulated. The circulation is depressed. Reluctance to exercise and to any bodily exertion becomes marked. Expansion of the lungs and oxygenation of the blood are less frequent and thorough. Metabolism is sluggish. Insufficient food is taken to supply the demands of the tissue for variety, and much of the food eaten may decompose in the intestine and produce toxic products.

Altogether there is still a sound physiologic foundation for the belief in the virtues of the outdoor life for the healthy as well as for the tuberculous person. In point of fact, nothing can discredit the rational open-air treatment, no matter what progress physiologists and hygienists may make in analyzing the mechanism on which this treatment rests.

THE BACILLUS OF CONTAGIOUS ABORTION IN COW'S MILK

A recently issued report from the Bureau of Animal Industry of the United States Department of Agriculture[1] calls attention anew to the infectious abortion of cattle, a disease which ranks second only to tuberculosis, and in certain sections of the country occasions even greater money losses. When we recall further that an infection of insidious character, in which there is practically no apparent change in the health of the mother prior to the abortion, can bring about the loss of the offspring, the loss occasioned by a reduction in the milk-supply, together with the failure to conceive for several months or at all after the abortion, the seriousness of the epizootic becomes apparent.

The causative agent in the infectious abortion of cattle has now been identified as the *Bacillus abortus.* The virus can be introduced into the body in various ways, such as the digestive tract, the vagina and perhaps the respiratory passages. No matter what the mode of natural infection may be, it is obvious that the bacillus of abortion shows a predilection for the mucous membranes of the uterus. The organism can be disseminated in a great variety of ways, for it has been found in the after-birth, the fetus and the vaginal discharges of the aborting animal, all of which serve as modes of spreading the infection. Milk has recently been added to the number of agencies by which the virus is eliminated from the body. Inasmuch as experimental animals, such as guinea-pigs, develop marked pathologic lesions in various organs and tissues when such naturally infected milk is injected into them, one is constrained to inquire into the possible pathogenicity of the *Bacillus abortus* for man. The government experts have appropriately pointed out that the common occurrence of a micro-organism, pathogenic for any species of animal, in an article of food as widely and as extensively used as milk, demands attention. This is the more true because premonitory symptoms of the disease are by no means always observed in the infected cattle, so that there is no occasion to expect any contamination of the milk from them. One is dealing with an organism that has the udders of apparently healthy cows as its normal habitat and which therefore cannot be certainly excluded from the milk no matter how much cleanliness and care are used in its production. The newest data show quite conclusively that the bacillus of contagious abortion of cattle—the organism producing tuberculosis-like lesions in guinea-pigs—may be eliminated continuously for years in the milk of infected cows that no longer abort. Although nothing is yet known about the possible effects of this infective agent on human beings, we can scarcely afford to assume that they are not affected by an organism which causes progressive lesions of a serious character in experimental animals. Chief Melvin points out that this bacillus may prove to be another source of danger in the use of raw milk as food and may furnish an additional reason for taking advantage of the safeguard afforded by the proper pasteurization of all milk before it is used as a food.

---

[1] Infectious Abortion of Cattle and the Occurrence of its Bacterium in Milk, Twenty-Eighth Ann. Rep. Bur. Animal Ind. for 1911, Washington, 1913, p. 137.

The animal diseases, such as the one here detailed, may concern the physician either directly as a possible source of human disorder, or indirectly in that they curtail the food-supply or the comfort and convenience of mankind. It is apparent, therefore, that we must be alive to every new finding in the field of veterinary pathology and the possibilities of its hygienic relations to mankind. Cow's milk has been assailed as the distributor of so many forms of human ills that one hesitates to entertain new charges against it until they are firmly substantiated. Nevertheless, sentiment must be overruled where hygiene reigns; and in the long run the frank recognition of hidden dangers or even harmful possibilities, such as those for which the bacillus of contagious abortion may become responsible, inevitably leads to preventive measures that are worth while from the point of view both of public health and of the economy of food production.

ALCOHOLIC FERMENTATION WITHOUT SUGARS

The production of ordinary alcohol, by the process of fermentation with yeast, out of substances other than sugars marks an event in science that deserves more than passing notice.[1] The subject of alcoholic fermentation has attracted the attention of chemists and biologists for generations. The outcome of the action of yeasts on sugar has long been expressed by an equation which indicates in chemical nomenclature: sugar = carbon dioxid + ethyl alcohol. As a matter of fact, neither of these end products of the reaction generated by yeast is present as preformed complexes in the sugar molecule. To any one with a chemical training it is apparent, therefore, that no simple disintegration of sugar by yeast will effect the familiar fermentation phenomena, including the rapid evolution of gaseous carbon dioxid. Indeed, the conviction has long gained ground among the initiated that instead of being eminently simple the fermentation processes are highly complex and that there must be one or more intermediary products in the transformation of sugar into the characteristic end-results of fermentation.

The epoch-making discovery of Buchner that alcoholic fermentation is quite as much an enzymatic process as the familiar transformations accomplished by the long-known digestive enzymes was significant. It showed that the reaction can, in a sense, be divorced from the actual life process of the yeast cell. The non-living, unorganized enzyme, zymase, can induce the typical gas production that had hitherto been inseparably associated with the continuance of organic existence in the yeast. Nevertheless this interesting fact has in no way served to solve the fundamental problem of fermentation, namely, the way in which its final products really are formed.

The researches of recent years have brought to light many new elucidating facts. It is not yet generally understood that prior to its fermentation sugar unites with phosphoric acid in fermentative mixtures; and in view of this important discovery of Iwanoff it is not sugar at all, but rather the phosphoric acid ester of sugar, that constitutes the primary object of attack by the yeast enzymes. A new importance is thus given to the compounds which accompany the pabulum of fermentation, and we begin to understand why the reaction has been so difficult to demonstrate when pure chemicals were used in place of the complex "mashes" of the industries.

There are various circumstances which point to the probability that sugar is first split into smaller molecules before it is subjected to the ultimate fermentative change itself; that is, the production of alcohol and carbon dioxid compounds with three carbon atoms, in place of the six of the fermentable sugars ($C_6H_{12}O_6$) have suggested themselves as the probable intermediate steps, for diverse chemical and biologic reasons. Lactic acid, $C_3H_6O_3$, and glycerol, $C_3H_8O_3$, are illustrations of such possibilities that have actual physiologic associations and are known to make their appearance under biologic conditions. Without detailed reference to others like glycerose, glycerol aldehyd, acetaldehyd, dioxyacetone, methylglyoxal, etc., all of which have been the subject of discussion, in this connection, we may direct attention to pyrotartaric acid, a compound which gives some promise of revolutionizing our current views of fermentation by yeast. It has been the merit of Neuberg and his co-workers in Berlin to demonstrate that this substance will give rise to carbon dioxid in typical fermentation fashion at once in the presence of yeast, as follows:

$$\underset{\text{Pyrotartaric acid}}{CH_3.CO.COOH} = \underset{\text{Carbon dioxid}}{CO_2} + \underset{\text{Acetaldehyd}}{CH_3.COH}$$

The significance of this reaction lies in the fact that it permits us to understand how an immediate production of gas may ensue from a substance like pyrotartaric acid which can be expected to be produced quite readily from sugar. Acetaldehyd, a product of the "sugar-free fermentation," is very closely related to ethyl alcohol. Neuberg has now actually succeeded by special devices in inducing a liberal formation of alcohol from pyrotartaric acid through the direct intermediation of yeast. Whether this takes place through the acetaldehyd stage or through some other more direct reaction is not yet ascertained.

---

[1] For details of this success see Neuberg, C., and Kerb, J.: Ueber die Vorgänge bei der Hefegährung, Berichte d. Deutsch. chem. Gesellsch., 1913, xlvi, 2225; Biochem. Ztschr., 1913, liii, 406.

It is enough to point out here that we are rapidly approaching a stage in the study of alcoholic fermentation in which each step can be understood and interpreted in terms of organic chemistry. The mystery of the yeast cell's behavior toward sugars is clearing up. Pyrotartaric acid looms up as something of biologic import. With the zymase of Buchner we may now align the new enzyme, carboxylase, of Neuberg. We begin to acquire light on how the six-carbon sugar chain may be torn apart into fragments of three, two and one carbon atoms. There are interesting prospects ahead, and they awaken the enthusiasm of students of medicine, because many of the life-phenomena of man have from time to time been interpreted by analogy with those of fermentation.

THE ENERGY TRANSFORMATIONS IN INDIVIDUAL ORGANS

Recent years have witnessed a greatly increased interest in what may be called the details of metabolism. Statements in regard to the energy changes of the body as a whole and the story of the gross nutritional needs of the organism have become familiar, if not commonplace. In a supplementary way attention is now becoming centered more and more in the chemical activities of localized parts of the body, and in the metabolic performances of organs and tissues; in the discovery of their specific peculiarities of function that may be quite as unique and distinguishing characteristics as are the recognized individualities of gross or minute structure. The progress which is bound to ensue from this newer point of view will serve to dispel much that has been vague in the domain of intermediary metabolism. We shall know more accurately and correctly what the special nutritive needs of organs like the liver, kidneys or brain are; to what extent their activities tax the energy capacities of the body which contains them, and precisely how their requirement for energy is to be satisfied in order to retain unimpaired physiologic efficiency. Furthermore, it is only a logical step to extend the inquiry and apply the methods of solution to the problems of pathologic function. It is time that some rational basis for the hitherto loosely employed statements about the "overworking" of one organ or another—the kidney, for example—be forthcoming.

In the beginnings which have been made in this new field of investigation various methods of research have contributed useful help. Organs of the higher animals and man are now successfully isolated from the body and "kept alive" by perfusion methods. The present generation of physicians can recall the older classic illustrations of such extracorporeal maintenance of function. The frog's heart and the muscle-nerve preparation from the leg no longer stand out as the conspicuous illustrations of isolated function. Almost every larger organ has been isolated and "perfused" with success. Again, the metabolism of the body as a whole can be studied before and after extirpation of the organ that is under investigation, and the differences thus brought out may be interpreted in relation to the part involved. The estimation of the differences in the quality of the blood before entering and after leaving an organ—a method especially developed in England—furnishes valuable data as to what transpires in its cells. Furthermore, the calorimetry of isolated tissues has recently been developed into a successful technic, so that the energy exchanges can be measured at the very seat of their genesis; and thus the caloric business of the entire individual can be investigated in the different departments, so to speak, that comprise our energy-transforming organization.

Precisely as the "heart-disease" of old is being subjected to careful analysis and classified into categories in which functional incoordination of beats, disease of localized muscular bundles or nervous transmission centers, vascular sclerosis or obstruction, myocardial incapacity, and what not, are all differentiated in diagnosis, so metabolism will soon no longer be the vague generalization that it has been. The newer devices of investigation and the special terminology employed have not yet become familiar to the ears of the clinician; but in time they will be mastered just as the findings of the electrocardiograph, of anaphylaxis, and of vaccine therapy and immunity are gradually being incorporated into our routine experiences.

By way of illustration of what is being accomplished in this field we may refer to a series of investigations conducted in Tangl's laboratory in Budapest.[1] By direct calorimetry Tangl[2] has estimated the work of the healthy kidneys, that is, the amount of chemical energy which is converted by the functioning of these organs into other forms of energy. In the animals investigated by him it amounts to about 8 per cent. of the total energy exchange during the resting condition. Here, then, is a concrete expression of the degree to which these secreting glands participate in the body's need for energy supplies. By way of contrast it is interesting to refer to the work of the spleen, which represents an organ entirely different in type from the kidneys. Extirpation of the spleen brings with it no appreciable, or at any rate no considerable, alteration in the respiratory metabolism of the individual[3]—a fact which we interpret to signify that the function of the spleen is of a decidedly different order from that of secreting structures of glandular nature.

The outcome of experiments under conditions of defective kidney function is very striking.[4] The work of the impaired, but still functioning, kidney is greater than that of a corresponding normal organ; it requires more oxygen and produces more carbon dioxid waste. In actual figures, an increase in energy transformation amounting to over 50 per cent. has been ascertained in some stages of nephritis. This increase in expenditure of energy under which the diseased kidney performs its work persists only so long as urine is abundantly secreted. When conditions arise in which pathologic defects have progressed to the point of partial suppression of the urine flow or to complete anuria, the kidney metabolism is no longer on a heightened plane. It may now even sink to levels below the normal for health. In other words, the increased energy expenditure of the diseased kidney ceases as soon as the power of secretion is profoundly impaired or lost.

---

[1] A group of interesting papers will be found in the Biochem. Ztschr., 1913, liii. No. 1/2.

[2] Tangl, F.: Calorimetrie der Nierenarbeit, Biochem. Ztschr., 1913, liii, 36.

[3] Verzár, F.: Die Grösse der Milzarbeit, Biochem. Ztschr., 1913, liii, 69.

[4] Cserna, S., and Kelemen, G.: Grösse der Arbeit kranker Nieren, Biochem. Ztschr., 1913, liii, 41.

Observations like the foregoing serve to place the energy aspects of the pathology of metabolism on a more comprehensible basis. They give an insight into kidney functions which no amount of microscopy or urinary analysis can replace.

Current Comment

SPECTACLES AND THE PANAMA EXPOSITION

The ubiquitous optician and the spectacle-vender have not overlooked the opportunity which the numerous world's fairs in recent years have afforded them of plying their trade. Like the lemonade and peanut vender at the county fair they have not failed to see that in these expositions lie chances for reaping a golden harvest on a widely expanded scale. It is understood that the management of the Panama Exposition at San Francisco intends to grant a spectacle concession. The possibility that harm to the eyes of those who purchase their wares will be caused through the totally unscientific work of these spectacle-venders has either not been understood by the exposition management or the swelling of the revenue has been allowed to outweigh any such considerations. In referring to this, *Collier's Weekly* says:

> Is the Panama-Pacific Exposition of 1915 going to taint itself at the outset by an alliance with quackery? Thus it would appear from the announced purpose of the management to offer over the counter the spectacle-selling concession of the enterprise. Protests, based on the ground that such procedure would be prejudicial to the eyesight of the public have thus far made no impression on the guiding spirits of the function as compared with the $60,000 or so to be gained.

The reply of President Moore of the exposition to one of these protests is: "If an official concession is granted at the exposition, it will only be to some business firm of high standing." This leads *Collier's* to remark:

> High business standing, doubtless. But of what professional standing or skill? Do the officials hold that protection of their guests' vision is a negligible consideration? Glasses fitted on purely concessionary or business principles may well ruin any eyesight. . . . The managers, on their own showing, take a purely commercial view of the transaction and utterly ignore the fact that better vision is not merely a matter of barter, but of professional skill and service. . . . Impaired vision for thousands of guests would be a dire aftermath to their fine enterprise.

The commercializing of a great exposition held in commemoration of the completion of one of the greatest works undertaken by men should at least not involve the danger of irreparable injury to the public who participate in it.

As *Collier's* says, "Obviously, to adopt the method of selling this permit to the highest bidder is to invite quackery," and quackery it will be whether the price be high or low.

THE PRICE OF RADIUM PREPARATIONS

The industrial journals report a marked reduction in the prices of radium preparations of late.[1] The total production of radium bromid per year is between 2 and 3 gm. In 1911 the radium preparations produced by the Austrian Radiumpraeparatefabrik amounted to 14.1 gm., containing 2.647 gm. of pure radium chlorid, valued at $214,900. Early in the present year radium bromid sold at $105 per milligram in Germany. In July, however, sales were made in Vienna at about half that price. As a reason for this decrease the fact is advanced that mesothorium, as well as radiothorium, has begun to be employed in place of radium, especially in medicine. Mesothorium more active than radium can be obtained at a cost of only $32 per milligram. Although the life of mesothorium is short, by mixing it with radium salts a long-lived preparation is said to be obtained.

THE FLUELESS GAS-HEATER

At this time of the year, when many feel that it is not cold enough to use the general heating-system of the house but is too cool to be entirely without heat, the use of portable gas- or oil-heating apparatus is a great convenience. Cleanliness and comparatively low cost of operation make this type of heating deservedly popular. Unfortunately many of these heaters are used without a flue-pipe to carry off the products of combustion. The use of such heaters is to be deprecated. This is especially true of those devices of low efficiency that make it practically imperative that the doors and windows be kept closed if the object sought—that of raising the temperature of the room—is to be attained. These heaters not only vitiate the air by consuming the oxygen and pouring forth the products of combustion into the room, but also put a premium on insufficient ventilation. The current issue of a high-class monthly magazine carries a full-page advertisement of a gas-heater that is specifically recommended for use in the children's play-room. It is advertised as "the ideal heat for the nursery," and in heavy type the claim is made that it "will not vitiate the air." Such advertisements are not only fraudulent; they are also dangerous. There may be times when one is willing to sacrifice health for comfort for a short time; when an increase of temperature in the room is sought even at the expense of vitiated air. When this is done with a full knowledge of possible dangers, it may not be too severely criticized. But to lead people to believe that any room can be heated healthfully for any length of time by means of flueless gas- or oil-heaters is dangerous doctrine. An efficient gas- or oil-heater with a flue attachment is an admirable piece of household apparatus; a flueless heater—except for the most temporary of uses, and then used with a full knowledge of the dangers involved—is an abomination.

---

[1] See, for example, Jour. Ind. Eng. Chem., September, 1913, p. 780.

DOES MILK CONTAIN LECITHIN?

The group of lipoid substances known as phosphatids or lecithins has long attracted the attention of physiologists because these fat-like compounds, containing both nitrogen and phosphorus in organic combination, appear to be a constant component of animal cells. They have formed a topic for discussion in connection with a great variety of biologic phenomena: absorption, growth, hemolysis, etc., in which phosphatids are currently believed to take a characteristic and more or less indispensable part. It is only a step further to inquire whether these compounds need to be furnished in the dietary or whether they can be constructed *de novo* as needed by the organism. Inasmuch as milk is the prominent if not the exclusive article of diet during an important period of growth, the question as to its content of phosphatids early received consideration. The very fact that the possible occurrence of lecithins in milk is debated is of itself suggestive that the quantity involved must at best be very small. The chemical methods for the detection of phosphatids are not ideal, to say the least. It is for this reason, doubtless, that some investigators, like the late Waldemar Koch, have affirmed, and others, like Schlossmann, have denied that milk contains them. The latest contribution,[1] based on apparently careful investigation indicates the complete absence of these ether-soluble phosphorus compounds in milk. If others have found positive results they are presumably due to substances other than lecithins of which milk may, for the present at least, be regarded to be devoid.

THE OCCURRENCE OF ALCOHOL IN THE TISSUES

Through the activity of the yeast-cell in the presence of glucose alcohol is formed. Is there anything analogous to this in the case of the animal cells that make up our tissues and organs? This question has often been debated; and the suggestion of close chemical relations between the fermentation initiated by yeast and certain aspects of the metabolism of carbohydrates in the animal body recurs from time to time. The possibility is further strengthened by the fact that muscle from freshly killed animals has more than once been reported on good authority as yielding traces of ethyl alcohol by distillation. The immediate explanation ventured has been that alcohol may be formed by the agency of micro-organisms in the alimentary tract. It may then be absorbed and distributed through the organism so that there need be no surprise if residual traces can be detected in the tissues at times. A. E. Taylor of the University of Pennsylvania has approached this phase of the theory advanced by examining the tissues of an animal in which bacterial processes within the digestive tube were excluded by complete removal of the tract. The operation is necessarily a difficult one; the circulation of the pancreas and the integrity of this gland must be maintained, and the animal must be kept alive long enough to permit the combustion of any traces of alcohol that might have been absorbed from the intestine prior to the operation. Even after this precaution small amounts of alcohol were still obtainable from the fresh tissues.[1] The implication thus obtained that alcohol may actually arise in metabolism offers nothing out of harmony with known biochemical fact and theory. It merely indicates one of the numerous possibilities, like lactic acid, formic acid, etc., exemplifying intermediary stages in the transformation of glucose by living organisms.

SANITARY MOTION PICTURE THEATERS

The majority of motion picture theaters are made by hastily equipping some store room ill suited to this purpose. The daily attendance in motion picture theaters in Chicago alone is estimated as close to 500,000. The total number of people throughout the country interested in this tabloid type of drama is enormous. In most instances the proper ventilation of such playhouses has been entirely neglected. Continually changing crowds of people are found in these places of amusement from 11 a. m. to 11 p. m. To neglect such a necessary question as that of ventilation and other sanitary measures in public places is almost criminal. In Chicago the Board of Health has undertaken an investigation of these theaters and is issuing certificates to the adequately equipped houses. Tests have been made by the ventilation department of the Board of Health which show that the air of a properly ventilated theater yielded but five colonies of bacteria on an exposed Petri plate, whereas, the air of an unventilated theater gave 250 colonies. The *Bulletin* says:

> "We shall go on fighting this menace until it is completely eliminated. We expect plenty of opposition from the short-sighted and ignorant classes of theater-owners, but the health interests of the many must eventually triumph over the money interests of the few. We fully recognize that when it's dollars against health it's an uphill fight for health.
>
> "If the people, whose health we seek to conserve, will lend us a fair measure of their moral support the fight will be won quickly.
>
> "Patronize only the properly ventilated theater.
>
> "Look for the Health Department's certificate."

FAITH WITHOUT WORKS

The Chicago newspapers recently gave space to the case of a young man who died under somewhat mysterious circumstances. After an all-night ride in taxicabs, the victim, who was a married man, reached home at seven o'clock in the morning half conscious. He died the following night. The coroner's autopsy indicated that death resulted from the effect of a drug. The wife testified that she realized that her husband was "dopy" when he reached home; she thought he was ill and "sent for a faith practitioner." When the "practitioner" arrived, the young man was totally unconscious and remained so until his death. From the newspaper accounts, then, it appears that a man suffering from the effect of some drug was given no treatment except that administered by a "faith practitioner." It is difficult for rational beings to understand the mental vagaries of those who place their reliance on "faith" practitioners. Had the young man in question been the victim of an automobile accident and been pinned beneath his machine, it is hardly conceivable that even a Christian Scientist would have expected the man to recover under "mental treatment." The first thing done would have been to remove the machine. As the unfortunate man had a poison in his body instead of an automobile on top of it, it seems to have been taken for granted that a "faith practitioner" was all that he needed. If the results of vicious fallacies were visited only on those that hold them, there would be nothing to say. Unfortunately, it is one of the conditions of life that suffering comes to the helpless and dependent almost as frequently as to those who deserve to suffer.

---

[1] Njegovan, V.: Enthält die Milch Phosphatide? Biochem. Ztschr., 1913, liv, 78.

[1] Taylor, A. E.: The Derivation of Ethyl Alcohol Contained in the Muscle, Jour. Biol. Chem., 1913, xv, 217.

Medical News

CALIFORNIA

Personal.—Dr. H. G. Brainerd. Los Angeles. has been appointed a member of the commission to select a site and approve plans for the construction of a new state hospital in Southern California.

Physicians' Casualty Association Organized.—The Medical Men's Casualty Association has been incorporated with headquarters at Los Angeles. The following are directors: Drs. Edward J. Cook. A. D. McLeod. C. D. Hone. Francis E. Brown. Harry M. Voorhees. Harry G. McNeil. and Frank E. Detling.

Tuberculosis Camp.—San Diego has selected the location for a tuberculosis camp to which tuberculous patients who are wards of the county will be removed from their present quarters in the county hospital. The camp is to cost about $10,000 for its establishment and will accommodate about twenty-five patients.

Dispensary Opened.—The municipal nursing commission of Los Angeles has taken steps toward the opening of a free dispensary to be under the direction of the College of Medical Evangelists. The dispensary is to be under the supervision of the Health Commissioners and a nurse is to be on duty from 1 to 3 o'clock every afternoon.

Hospital Notes.—The cornerstone of the new St. John's Hospital at Oxnard was laid with impressive ceremonies September 23.——The contract has been let for the erection of a county hospital for Orange County near Santa Anna. at a cost of $44,944. The building is to be a two-story and basement structure. 48 by 92 feet. of reinforced concrete construction. ——It is announced that the new San Francisco Hospital will be completed and ready for occupancy by November 1. The buildings now being erected are to complete the group of tuberculosis and infectious disease buildings.——Mount Zion Hospital is being erected at the corner of Post and Scott streets, San Francisco. at a cost of $300,000.

COLORADO

Personal.—Dr. L. W. Ely. Denver. has accepted the chair of orthopedics in the Leland Stanford University. San Francisco. ——Dr. Ella H. Griffith. Denver. has won her suit for $3,000 against the estate of the late Hugh Butler for service rendered his deceased wife.

Reorganization of Medical School.—Under the reorganization of the School of Medicine, University of Colorado, the medical senate has been done away with. The executive committee consists of the dean. Dr. W. P. Harlow. chairman. and Drs. O. M. Gilbert. Boulder; Robert Levy. Edward Jackson. and W. A. Jayne. This committee has appointed three standing committees. the chairman of each of which is a member of the executive committee: hospital committee, W. A. Jayne; dispensary committee, Dr. Robert Levy; course committee, Dr. Edward Jackson. The dean is an ex officio member of all standing and special committees. The faculty (meaning the full professors) has been divided into the following groups: Surgery, Drs. R. W. Corwin. W. B. Craig, Leonard Freeman, Luman M. Giffin. H. G. Harvey, C. B. Lyman, George B. Packard, C. A. Powers, and E. J. A. Rogers; medicine, Drs. J. R. Arneill. S. G. Bonney, G. H. Cattermole, O. M. Gilbert, J. N. Hall. M. Kleiner, W. P. Rothwell, Henry Sewall. W. H. Sharpley. C. F. Shollenberger, C. B. Van Zant. and H. B. Whitney; eye, ear. nose and throat, Drs. Wm. C. Bane. Melville Black. John Chase, D. H. Coover, Edw. Jackson, J. M. Foster, Robert Levy; obstetrics and gynecology, Drs. T. M. Burns, C. S. Elder, W. A. Jayne. F. H. McNaught, and T. E. Taylor; fundamentals. Drs. C. T. Burnett. F. G. Byles. John Ekeley, C. Gillaspie, W. C. Mitchell. A. R. Peebles, E. B. Queal, J. C. Todd. H. E. Washburn. and R. C. Whitman; specialties, Drs. S. B. Childs. W. H. Davis, A. J. Markley, G. H. Stover, G. E. Neuhaus J. H. Pershing, H. T. Pershing, and N. Weist.

CONNECTICUT

New Officers.—Meriden City Medical Society, September 11: president. Dr. M. J. Sullivan (reelected); secretary and treasurer. Dr. David P. Smith.

Hospital Dedicated.—The new buildings of the Stamford Hospital were dedicated September 20. The hospital represents an outlay of $400,000. The buildings stand on a site of 12 acres donated by Albert Crane, and are of brick construction and fireproof, and include an isolation hospital for communicable diseases.

GEORGIA

Antituberculosis Association Receives Charter.—The Atlanta Antituberculosis and Visiting Nurses' Association was granted a charter September 5.

Medical Department Abandoned.—At a meeting held in Atlanta. September 6. by the management of the Southeastern University. it was decided to abandon at present the idea of opening a medical department of the institution this fall.

Personal.—Dr. Louis Hollander. Atlanta, has been elected superintendent of the Battle Hill Tuberculosis Sanatorium, Atlanta.——Dr. L. J. Chedel. city physician of Savannah. was seriously injured in an automobile accident September 19.

Information About Tuberculosis.—The State Board of Health has issued an educational bulletin telling of the history. the means of prevention. and the cure of tuberculosis. The board will examine sputum free of charge in its laboratory in Atlanta.

Medical Examiners Appointed.—Governor Slaton on September 24. appointed the following members of the Board of Medical Examiners: Drs. Jarrett W. Palmer. Ailey. Francis M. Ridley. La Grange, C. T. Nolan. Marietta, F. D. Patterson, Cuthbert. representing the regular school; Drs. C. M. Paine. and R. E. Hinman. Atlanta, representing the homeopathic school. and Drs. A. F. White. Flovilla, and A. Fleming. Waycross. representing the eclectic school.

ILLINOIS

Personal.—Dr. John Ross. Pontiac, has succeeded Dr. James A. Marshall as physician to the Illinois State Reformatory. ——Dr. Isaac Moore. Alton, is reported to be seriously ill as the result of a cerebral hemorrhage.

Tuberculosis Cottages to Be Built by County.—Vermilion County has arranged to provide for its tuberculosis patients by the erection of two cottages at the County Home. The buildings are to be completed before December.

Anti-Tuberculosis League Organized.—At a meeting held in Mendota recently. the LaSalle County Anti-Tuberculosis League was organized. Drs. E. P. Cook, Mendota. Benjamin J. Nauman. Peru. and William Schoenneshofer, Lostant, are vice-presidents of the league.

Chicago

New Year of the Medical Women's Club.—The Medical Women's Club held its first meeting and dinner of the year at the Chicago College Club, October 8.

Out-Door School Plan.—An out-door school for children affected with tuberculosis is to be erected on the roof of the Parish House of Grace Episcopal Church.

New Psychopathic Hospital.—The Cook County Detention Hospital has been dismantled to make room for a new psychopathic hospital with accommodation for more than two hundred patients. For the present, patients are being cared for in a building across the street from the old detention hospital.

Personal.—Dr. C. St. Clair Drake has been elected president of the Town and Country Club.——Dr. Ludwig Simon sailed from San Francisco, October 7, on a six months' trip around the world.——Dr. and Mrs. E. Fletcher Ingals and daughter and Dr. and Mrs. G. E. Fosberg have returned from Europe. ——Dr. B. M. Linnell fractured his arm while cranking his automobile, October 6.

American College of Surgeons.—Dr. Franklin H. Martin, general secretary of the American College of Surgeons, asks us to announce that on the evening of Nov. 13, 1913, will be held the first formal meeting for the conferring of fellowships on the members of the American College of Surgeons. Sir Rickman Godlee, the president of the Royal College of Surgeons of England, will deliver the principal address, and Dr. J. M. T. Finney the presidential charge.

Clinical Congress of Surgeons of North America.—The fourth annual session of the Clinical Congress of Surgeons of North America will be held in Chicago, Hotel LaSalle, November 10 to 15. On each evening except Saturday, scientific sessions will be held. On Tuesday, Thursday and Friday evenings there will be separate meetings for those specially interested in surgery of the eye, ear, nose, throat and mouth. Prominent men from abroad have been invited. The preliminary program may be had from the general secretary, Dr. Franklin H. Martin, 31 N. State St., Chicago.

MARYLAND

Births Exceed Deaths.—Interesting statistics in the report of the Baltimore Health Department for the last month show that the births exceeded the deaths by 432, the deaths totaling 792 and the births 1,224, the largest number of any month this year. On the basis of an estimated population of 575,204, the percentage of deaths was 16.45 and that of births 25.45 per thousand. There were 526 marriages reported.

Centennial of Foundation of Library.—The beginning of the present term of the Maryland University is the one hundredth anniversary of the founding of the library by Dr. John Crawford. The library now contains 18,000 volumes, among them some rare editions, especially those bequeathed by Dr. Crawford, who was probably the first physician to arrive at any remarkable results in regard to the conveyance of contagious diseases by mosquitoes.

Report of Mental Hygiene Committee.—The Mental Hygiene Committee of the Maryland Psychiatric Society, Dr. Adolf Meyer, chairman, held a meeting on October 7 and received the report of Dr. W. B. Cornell, the executive secretary. In the nine months of the committee's existence, over 200 cases have been handled. The work of the committee deals both with preventive and after-care cases and is in close touch with all social service agencies, as well as all the hospitals for the insane in the state.

Baltimore

Personal.—Dr. J. Whitridge Williams has returned from Watch Hill, R. I., where he spent the summer.——Drs. Lewellys F. Barker, Thomas H. Buckler and William H. Welch, have returned from Europe.——Dr. Brice W. Goldsborough recently underwent an operation at the Hervar Kelley Sanatorium.

Ask Increased Appropriations.—Mercy, Maryland General, St. Joseph's, St. Agnes', Franklin Square and Maryland Homeopathic hospitals, have applied to the Board of Estimates for an increased appropriation from Baltimore City. The money appropriated is for the maintenance and treatment of "free patients," many of whom have to be turned away for lack of funds.

NEW YORK

State to Build Antitoxin Laboratory.—The State Health Board has decided to purchase property at Guilderland, near Albany, on which to erect an antitoxin laboratory for the State Department of Health.

Want Health Home Kept Open.—An effort is being made to raise funds sufficient to keep the Health Home for Working Girls at Santa Clara in the Adirondacks open during the winter months. Many girls suffering from tuberculosis have appealed for care until late into the fall.

New Officers.—Medical Society of the State of New York, Seventh District Branch, at Sonyea, September 25: president, Dr. William T. Shanahan, Sonyea; secretary, Dr. John F. Myers, Sodus.——Eighth District Branch: president, Dr. Arthur G. Bennett; secretary, Dr. Carl Tompkins, both of Buffalo.

Hospital News.—The Montgomery County Tuberculosis Hospital near Amsterdam was officially opened to the public September 20.——The contract for building the Children's Tuberculosis Hospital at Buffalo has been awarded, and the acting mayor has approved the action of the common council regarding the issuance of bonds.——It has been decided not to open the winter tuberculosis camp near Dunkirk this winter.

Memorial Meeting of Faculty.—At a meeting of the faculty of the College of Medicine of Syracuse University September 25, Dr. A. B. Miller read a memorial of Dr. Albert S. Hotaling, and Dr. Henry L. Elsner eulogized the work of the late Dr. Nathan Jacobson.——Dr. Eugene W. Belknap has been nominated professor of obstetrics, vice Dr. Hotaling, and Dr. L. C. Ransom has been nominated instructor in clinical chemistry and microscopy.

Personal.—Dr. William D. Johnson, Batavia, fell from a ladder September 24, breaking his left leg just above the ankle.——Niagara Falls Academy of Medicine gave a dinner September 25 in honor of Dr. Carl G. Leo-Wolf, who is about to leave for Germany. Dr. Leo-Wolf was presented with a black walrus traveling-bag.——Dr. John R. Ross of the St. Lawrence State Hospital, Ogdensburg, has been appointed first assistant physician at the Dannemora State Hospital.

New York City

Leaves Large Estate.—The will of the late Dr. Oliver Livingston Jones was filed for probate September 11. It disposes of an estate valued at $10,000,000.

Evolution.—While the registration at Columbia University is 200 in excess of that of last year, being 5,930, the School of Medicine has only 289 students as compared with 302 for 1912.

Issuance of Birth Certificates.—During the eight days immediately preceding the opening of the school term, the Bureau of Records of the Department of Health issued 20,834 copies of certificates of birth to children about to enter school.

New Columbus Hospital.—Plans for the new Columbus Hospital have been approved by the State Board of Charities and the Building Department and the new building on East Twenty-Sixth Street will be begun in a few weeks. The building is to be ten stories high, will accommodate 300 patients and will cost $150,000.

Infant Mortality Rate Again Lowered.—According to the records of the Babies' Welfare Association, the last two weeks in September show a considerable decrease in infant mortality as compared with the corresponding period of last year. During the last two weeks in September there have been seventeen fewer deaths than occurred during the corresponding two weeks of 1912. Up to this time there have been 358 fewer deaths among infants this year than during 1912.

Harvey Society Lectures.—The first lecture of the ninth course of Harvey Society lectures was delivered on October 4 by Prof. A. D. Waller, University of London, entitled "A Short Account of the Origin and Scope of Electro-Cardiography." The second lecture of the course will be delivered on the evening of October 18 at the New York Academy of Medicine by Prof. Adolph Schmidt of the University of Halle on "Severe Anemia in Gastro-Intestinal Diseases."

East Side Blames City for Typhoid Epidemic.—The East Side Protective Association held a meeting on September 27 at which ways and means of stemming the tide of typhoid fever were discussed. A protest was sent to the mayor demanding a more rigid enforcement of the Sanitary Code. The protest called attention to the fact that fruit merchants feel that fruits unfit for food and other decayed food can easily be disposed of in this district, and that it is the duty of the city to see that the people are protected from the greed that places no value on life.

Personal.—Dr. Lucius W. Hotchkiss met with an automobile accident at Troy Hills, N. Y., on September 28. He sustained a fracture of the arm near the shoulder and a number of severe cuts about the head. His wife and two children, who were with him, were also injured.——Dr. Robert L. Morrison, surgeon-in-chief of the Williamsburg Hospital, and Dr. Emil Boehm, a young surgeon attached to the second division of Bellevue Hospital, are seriously ill with blood poisoning, the result of slight wounds sustained while performing operations. ——Dr. Walter Beusel, sanitary superintendent of the Health Department, has resigned.

New Laboratory at Otisville.—The new laboratory at Otisville Tuberculosis Sanatorium has begun its work. Under the direction of Dr. A. McNeil, two bacteriologists, one laboratory assistant and two helpers are now engaged in carrying out research work. The two bacteriologists are Drs. H. A. Hatfield and I. Abrahamson. At the present time the refining of antitoxin is being done at Otisville and experimental work in complement fixation in tuberculosis has been begun. The Department of Public Charities has recently placed at the disposal of the Tuberculosis Admission Bureau the use of a commodious omnibus for the transfer of Otisville patients and their baggage from the bureau to the Erie Railroad Depot.

The Cost of Aliens to Bellevue and the Allied Hospitals.—A report recently submitted to the mayor by the commissioner of accounts shows that during the year 1912 there were 57,422 persons treated in the wards of Bellevue and the Allied Hospitals and that an inspection of the records of these patients, in 11,334 cases treated in October, November and December of last year, showed that 671 had been less than three years in this country. If this ratio were applied to the three years, 1910, 1911 and 1912, approximately 9,879 aliens not citizens of this country were treated without charge. It is estimated that the cost for such treatment amounted to $208,446. The inclusion of aliens who have been in this country for more than three years would considerably augment this sum The board of trustees of Bellevue and the Allied Hospitals recommend that negotiations be opened with the proper authorities at Washington with a view of relieving New York City from the unjust share of this federal burden and that a history be prepared of each dependent alien in these institutions with a view to deportation if the circumstances warrant such action.

NORTH CAROLINA

Will Surrender Lease of Hospital.—Dr. Eugene M. Yount, Statesville, announces his intention of surrendering the lease of Billingsley Hospital to the municipality, January 1 next. It is expected that the city will reopen the institution as a general hospital, open to the profession and public.

Personal.—Prof. William DeB. MacNider, professor of pathology in the University of North Carolina, was the guest of honor at a banquet of the Mecklenburg County Medical Society in Charlotte, October 3, at which he gave an address embodying the results of his recent research on renal circulation and its relation to the diseases of the kidney.

Annual Examination of Policy Holders.—The Southern Life and Trust Insurance Company, Greensboro, has announced a permanent policy of offering each of its policy-holders an annual examination made by physicians from the home office to enable the insured early to apprehend any malady and thus be better enabled to prevent the development of disease or to check it in an early stage.

Typhoid in Charlotte.—On account of the report of the city health officers of Charlotte that 74 per cent. of the cases of typhoid fever in the city this season had occurred in persons using open wells and not city water, and the report that more than 90 per cent. of the specimens of well water examined had shown more condemnation than the raw water from the Catawba River, the Charlotte Board of Health has ordered disinfection and closing of the open wells in the city.

Hospital Staff Elected.—The board of managers of the Mission Hospital, Asheville, announces that the following staff has been elected: Drs. M. H. Fletcher, Charles S. Jordan, Lewis B. McBrayer, Marion C. Millender, Porter B. Orr, Paul H. Ringer, Arthur T. Pritchard, Joseph B. Greene and Arthur W. Calloway. Drs. Lewis W. Elias, William P. Herbert, O. F. Eckel, J. L. Adams, Franklin W. Griffith and Martin L. Stevens were elected as the adjunct staff. Dr. William L. Dunn was elected dean of the Nurses' Training School.

PENNSYLVANIA

New Officers.—Tri-County (Dauphin, Lebanon, Lancaster; Fourth Censorial District) Medical Society, at Lancaster, August 28: president, Dr. Joseph R. Beckley; secretary, Dr. George R. Pretz, both of Lebanon.

Small-Pox at Coatsville.—As the result of a visit of a traveling salesman for a brewery firm, suffering with small-pox and mingling with many people, nine families of Coatesville and Parkersburg have contracted the disease. Citizens of both towns have been advised to be vaccinated.

Personal.—Dr. Harry B. Burns has succeeded Dr. E. R. Walters as Director of Public Health of Pittsburgh. Dr. Walters has been appointed delinquent tax collector of Allegheny County.——Dr. Watson L. Savage, director of physical training in the public schools of Pittsburgh, has resigned to take charge of the New York Normal School for Physical Education.——Dr. Charles M. Strickler, Lebanon, is seriously ill with peritonitis.——Dr. George Hay, city physician of Johnstown, is ill in the municipal hospital with scarlet fever.——Dr. J. K. Weaver, Norristown, has been elected surgeon-general of the Grand Army of the Republic.——Dr. Charles W. Youngman, Williamsport, has been elected president of the Antees Fort Memorial Association.——Dr. John C. Price of Scranton, Pa., has been appointed chief medical inspector of the Department of Labor and Industry.

Philadelphia

Additions to Hospital.—Extensive additions are shortly to be made at St. Mary's Hospital, which will more than double the capacity of the institution.

Free Clinical Courses.—The Hughes-Wilson courses on the heart and lungs, given annually at the Philadelphia Hospital, began September 29. This course is open to the medical profession without charge.

Baby Show at City Hall Closes.—The baby-saving show, which for the last four months has been on exhibition to the public at City Hall, closed October 2. Since the opening, there were more than 400,000 visitors.

Physical Defects of Schoolchildren Costly.—According to statistics compiled by Dean E. C. Kirk, of the University of Pennsylvania Dental Department, lack of attention for schoolchildren costs Philadelphia $130,000 yearly.

New Superintendent.—George G. Signor, for eight years superintendent of the Medico-Chirurgical Hospital, has resigned to take charge of the Eastern Pennsylvania State Institute for the Care of Feeble-Minded and Epileptics, Pottstown.

Eye Dispensary at School.—A branch of the eye dispensary of the Philadelphia Department of Public Health and Charities for the examination and treatment of the eyes of schoolchildren has been established at the Southwark School, and is in charge of Dr. W. J. Ryan.

To Raise Fund for West Chester Hospital.—Officials of the Chester County Hospital have inaugurated a campaign to raise $80,000 for the erection of additions to the present institution. The fund will be used to erect and equip a new and modern operating room, power house and laundry, sun parlors and diet kitchens.

New Children's Hospital.—Work was begun September 29, on the foundations for the first of the group of buildings to be constructed at Eighteenth and Fitzwater Streets for the Children's Hospital. This will be the dispensary, and it will be at the northeast corner of Eighteenth and Fitzwater Streets. This new group of buildings will take the place of the present Children's Hospital on Twenty-Second below Walnut Street, which has been outgrown. They will occupy the site of the old Williams lumber yard on Eighteenth, from Fitzwater to Bainbridge Street, and the houses 1715 to 1721 Fitzwater Street.

Typhoid Epidemic Not Abated.—There is no abatement in the epidemic of typhoid fever, the number of new cases reported during the week reaching 54, an increase of 11 over the previous week. George C. Whipple, professor of Sanitary Engineering at Harvard University, and F. Herbert Snow, chief of the sanitary engineering department of the State Board of Health, began investigations here on September 29. The United States Health Service is also taking a part in the investigation and Dr. W. G. Stinson, U. S. P. H. S., together with Chief John A. Vogelson, of the Bureau of Health, and Carlton A. Davis of the Water Bureau, examined the river boats and piers on October 1.

Personal.—Dr. Robert C. Parish has been appointed medical supervisor of public schools vice Ralph C. Spangler, resigned.——Dr. Morris Jastrow has been invited to give a lecture before the Royal Society of Medicine in London, on "The Medicine of Babylon and Assyria." Jastrow sailed for England, September 27.——Dr. L. B. Moore, ambulance physician at the Presbyterian Hospital, was painfully injured in a collision between the ambulance and a street-car, September 9.——Dr. E. B. Hodge, a member of the visiting staff of the Presbyterian Hospital, Philadelphia, had a narrow escape from death on October 4, when his motor-car was caught between two trolley cars and smashed to pieces on the Chestnut Street bridge. Dr. Hodge was buried beneath the wreckage but escaped with slight bruises.——Dr. George Morrison Coates has been elected surgeon to the ear, nose and throat department of the Pennsylvania Hospital, as a colleague of Dr. Francis R Packard.

GENERAL

Special Train to Academy Meeting.—A special train has been arranged for the accommodation of those who wish to attend the annual meeting of the American Academy of Ophthalmology and Oto-Laryngology at Chattanooga. The train will leave Chicago October 24 by way of the Chicago and Eastern Illinois Railroad to Nashville, and the Nashville, Chattanooga and St. Louis Railway to Chattanooga, arriving at 3:42 p. m., October 25.

Railway Surgeons to Meet.—The annual meeting of the National Association of Railway Surgeons will be held at the Hotel Sherman, Chicago, October 15 to 17.——The seventh annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held at the Hotel Pfister, Milwaukee, December 4 and 5.——Dr. John B. Murphy will deliver the oration on surgery, on "Fractures in the Neighborhood of Joints," and Gov. McGovern of Wisconsin will deliver a discourse on the "Workmen's Compensation Act."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, Yonkers, $25,000 toward the enlargement fund subscribed by Alexander Smith Cochran.

Mount Sinai Hospital, New York City, $5,000, and Infants Summer Hospital, Lake Ontario, $1,000, by the will of Abram N. Stein.

University Hospital, Philadelphia, $5,000, by the will of Fanny H. Dickson.

Charity Hospital and Episcopal Hospital, Philadelphia, contingent bequests of $25,000 each, by the will of Mrs. Helen E. Payne.

University Hospital, Philadelphia, one-third, and Pennsylvania Epileptic Hospital and Colony Farm in Chester County, two-thirds of a contingent bequest of $130,000 by the will of Mrs. Anna F. Francine.

Wyandotte City (Mich.) Municipal Hospital, the residence of Mrs. Fred Ginzel with the provision that the state will name the institution after her deceased son.

Hahnemann Hospital, Chicago, $100,000 for the building fund donated by William Wrigley.

Abington (Pa.) General Hospital, $135,000, donated by George W. Elkins.

Massachusetts General Hospital, Boston, $30,000 for free beds; Childrens Hospital, Boston, $25,000; Convalescent Home of the Childrens Hospital, $25,000; Massachusetts Charitable Eye and Ear Infirmary, Industrial School for Crippled and Deformed Children and Boston Asylum and Reform School, Thompson's Island, $10,000 each, *by the will of Harriet O. Cruft.*

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $180, will be made on July 14, 1914, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1914. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of the competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. Further information may be obtained on application to Thomas R. Neilson, M.D., Secretary, 19 South Twenty-Second Street, Philadelphia, Pa., U. S. A.

CANADA

Quarantine Building Site Approved.—Dr. F. Montizambert, director-general of public health, while on his annual tour of western Canada, approved of the site for a new quarantine building at the William Head Station at a cost of $45,000.

Epidemic Warning.—The epidemic of infantile paralysis which broke out in Montreal about five weeks ago is now waning. The cases were promptly reported to the medical officer of health. There were about twenty-five cases altogether.

Medical Museum Trip Successful.—Dr. Maude Abbott has returned to Montreal from Italy. As secretary of the International Association of Medical Museums, Dr. Abbott was successful in establishing a branch in Italy. Her visit to Europe extended over three months.

Reporting Venereal Diseases.—The Social Service Council of Canada has adopted a resolution calling for the reporting of venereal diseases to the medical officers of health, and providing that no one be granted a marriage license until the contracting parties present medical certificates of normal mentality and freedom from venereal diseases.

The Licensure of Osteopaths and Chiropractors.—In the annual report of the Manitoba Medical Council the statement is made that each year the council has had to fight legislation to license osteopaths and chiropractors. Thus far the council has prevented legislation giving legal status to these people. The registration fee of the Manitoba council has been reduced from $125 to $100.

Hospital News.—Plans for a new general hospital at Kootenay, B. C., have been approved by the Hon. Dr. H. E. Young, provincial secretary. The estimated cost is $75,000, and provision is to be made for fifty-five patients.——A new hospital at Ashcroft, B. C., has just been opened. It cost $12,000 and has accommodation for fifty patients.——The plans for the new hospital at Victoria, B. C., call for an expenditure of $450,000 for the mortuary and pathologic buildings alone. The new hospital is to have in addition four ward buildings, an administration building and a service department building. All the buildings will have capacious roof gardens.——The government of British Columbia will assist the governors of the new hospital at Alberni, B. C., in clearing that institution of all debts.——The new wings of the Winnipeg General Hospital, which cost, exclusive of furnishings, $650,000, were formally opened on September 29. The accommodation in the Winnipeg General Hospital is now 478 beds.

LONDON LETTER

(From Our Regular Correspondent)

London, Sept. 27, 1913.

Vital Statistics

A report has just been issued by the registrar general on the vital statistics for the year 1911, and contains several interesting facts. The birth-rate was 24.4 per thousand of the population and 2.8 below the average for the preceding decennium and the lowest on record. Provisional figures for 1912 indicate a further fall of 0.6. The death-rate was 14.6 per thousand, or 0.8 below the average of the preceding decennium; this is 1.1 per thousand above that recorded in 1910, which was the lowest on record. The provisional rate for 1912 is, however, only 13.3. Marriages were in the proportion of 15.2 per thousand, being 0.3 below the average of the preceding decennium but 0.2 above that in 1910, which in turn was 0.3 over the rate in 1909. The provisional figures available for 1912 show a further increase of 0.8. Infantile mortality, owing largely to the abnormal heat of the summer, was 130 per thousand births, or twenty-five more than in 1910 and the highest recorded since 1906. The provisional rate for 1912, however, is only ninety-five, so that in spite of interruptions there has been on the whole a fall in the mortality. As to individual diseases, measles and diarrheal diseases showed more than the average mortality. On the other hand, the death-rate from scarlet fever was the lowest recorded. That for whooping-cough was the lowest except the rate of 1910; that for diphtheria and croup the lowest except for 1910, and that for typhoid fever the lowest except for 1909 and 1910. The rates for bronchitis and all forms of tuberculosis were lower than in any previous years except 1910. On the other hand, the death-rate from cancer was higher among both males and females than in any preceding year.

Outbreak of Small-Pox in Australia

An extensive outbreak of small-pox has occurred in New South Wales and furnishes an object lesson, much needed in this country, of the pernicious effect of the antivaccinationists. For many years that community has been practically unvaccinated, and yet it is in constant communication with the almost perpetually infected ports of eastern Asia. A strict quarantine system has proved very effective, however, for many years. Indeed, with the exception of Victoria the vaccination laws are practically a dead letter in all the Australian colonies. In the period of thirty years, from 1881 to 1910, only 108 deaths from small-pox have been recorded in Australia, and many of these occurred in new arrivals in quarantine. So successful has the quarantine system been that from want of experience many of the local physicians missed the diagnosis of the milder cases of the present epidemic. It may be remarked that owing to the same cause many of the cases of small-pox which occurred in the last epidemic in London, about ten years ago, were not diagnosed by the physicians. It seems that the disease in the present epidemic was introduced from New Zealand, where it had been brought by a Mormon missionary suffering from such a mild form that he baffled the quarantine officers. He infected the Maori population among whom he was working. In Sydney cases began to occur last April and were diagnosed as chicken-pox. In June a patient was admitted to the Sydney Hospital and the case was correctly diagnosed by a dermatologist. He was overruled by men of less experience, however, and only after great difficulty succeeded in getting the patient isolated. From that time greater care was taken, and in July it was at last officially announced that sixty cases of small-pox were recognized in Sydney. Every facility was at once provided for the vaccination of Sydney residents, of whom nine-tenths had never undergone the operation. Persons were vaccinated in large numbers. Unfortunately many of them were very ill after the operation with symptoms resembling influenza, and as they had been told that the operation was perfectly harmless disappointment resulted and vaccination fell into disfavor. This result appears to have been partly due to the inexperience of the operators, who used the lymph too freely. The total number of cases of small-pox recorded in New South Wales up to August 11, was 458. Nine of the patients had been vaccinated in infancy, but none of the others had been vaccinated. Such a scare has now been created that vaccination is made compulsory and quarantine is enforced more strictly than ever.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Sept. 26, 1913.

Vocational Mortality

Dr. Jacques Bertillon, formerly chief of the Paris department of statistics, has published a study of mortality in the different vocations, dividing them into five groups according to their particular causes of death: employments exposing the workman to (1) alcohol, (2) lead-poisoning, (3) organic waste, (4) the weather, and (5) confined positions. These five groups are subdivided into a hundred distinct vocations. The principal causes of mortality prove to be alcoholism, diseases of the lung, heart, liver and nervous system, diabetes, suicide and accidents.

Most healthful are those vocations carried on in the open air, provided they permit movement: those restricting freedom of movement, though carried on in the open air, are harmful. Trades exposing the workmen to alcohol and to lead-poisoning are the most dangerous.

Mortality is lowest among railway enginemen, wood-sawyers, teachers, attorneys and clergymen. It is nearly as low among physicians, pharmacists, architects, lawyers' clerks, mail and telegraph employees, commercial travelers, grocers, fruiterers, hatters, booksellers, hardwaremen, watchmakers, weavers, tanners, masons, road laborers and servants.

Mortality is higher than the general average among public officers, office clerks, street-railway employees, gas-workers, sellers of fish and poultry, jewelers, cloth merchants, saddlers, bakers, millers, butchers, curriers, rope-makers, cabinet-makers, carters, roustabouts and sailors.

Mortality is highest among day laborers, stevedores, miners, stone-cutters, tradespeople, coachmen, grooms, foot-boys, jockeys, petty shop-keepers, printers, blacksmiths, tilers, glass-makers, messengers, cutlers, chimney-sweeps, barbers and musicians.

Suicide is encountered in nearly all vocations but is rare among clergymen, officers, railway, mail and telegraph employees, shipbuilders, sawyers, employees in gas-works and booksellers. It is quite rare among tanners, masons, farmers, road-builders, boatmen, fishermen, wheelwrights and miners. It is met comparatively often among grocers, hardwaremen, cloth-merchants, coopers, weavers, blacksmiths, glass-makers, cabinet makers, tobacconists, notaries and lawyers' clerks, teachers, architects, sailors and gamekeepers. Suicide is frequent among brewers, tilers, petty shop-keepers, cutlers, hatters, barbers, tradespeople, clockmakers, jewelers, domestics, dairymen, sellers of fish and poultry, gardeners, commercial travelers, attorneys, physicians and pharmacists. All these vocations show a frequency of suicide above the average, but the highest suicide-rate is found among saloon-keepers, the servants of retail storekeepers, chimney-sweeps, butchers, fruiterers and musicians.

Treatment of Mushroom Poisoning by Abscess of Fixation

Long ago Fochier of Lyons proposed for certain generalized infections (pneumonia, puerperal fever, etc.), a treatment which bears his name to-day and consists in the production by the subcutaneous injection of essence of turpentine of an aseptic abscess of fixation. Carles of Bordeaux has shown that in the pus of these abscesses are sometimes found the organisms which have caused the disease against which this therapy has been directed. Lesieur also has shown that in certain cases of typhoid virulent bacilli of Eberth are found in the abscess of fixation. In addition to microbes, this pus has been found to contain toxic substances like lead or mercury in those patients affected with plumbism or mercurial poisoning.

Dr. A. Pic, professor of therapeutics at the Faculté de médecine de Lyon, has been led by these facts to believe that the toxic agent causing poisoning by mushrooms containing phallin (a toxalbumin acting like a microbe toxin) will be found fixed in the pus of the abscess. After observing for several years many cases of mushroom poisoning at Trévoux, Ain, he applied the method of Fochier to patients who were yet alive at the first examination, with the result that of twenty-three treated, nine died and the others recovered, a mortality of only 39 per cent., in contrast to 86.8, which is the usual mortality. Out of thirty-eight cases of phallin poisoning in France in recent years, thirty-three were fatal.

Pic and Martin conclude that the abscess of fixation is a therapeutic agent of the first order in those terrible intoxications due to the *Amanita phalloides.*

Sale of Alcohol to Railway Employees Forbidden

The management of the state railways has forbidden the sale of alcohol or alcoholic drinks to any one employed by the railways. Railway officers are asked to keep watch to prevent any employee leaving his work and going to a saloon during his working hours. A similar watch is recommended to prevent any one from bringing alcoholic drinks onto railway property.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 19, 1913.

Personal

Professor Gaffky, director of the Institute for Infectious Diseases, retires from his position October 1. His successor will probably be Professor Loeffler of Greifswald. Gaffky has been tired of his work for a long time, in view of his age, 63, and intends to give himself a complete rest and take a permanent vacation at his native city, Hanover. It will excite surprise among many that Loeffler at nearly the same age should change his residence, but Loeffler has for a long time expressed the natural wish to leave the small university town and seek a wider sphere of activity. This desire has undoubtedly grown stronger since the death of his wife a few years ago.

The seventieth birthday of the noted Berlin ophthalmologist, Prof. Julius Hirschberg, was observed September 18. Hirschberg's name is closely connected with the progress of modern ophthalmology. After he attracted the attention of Albrecht von Graefe in the Berlin municipal cholera hospital he stood in close relation to the father of ophthalmology, and helped with his own work to raise the treatment of the eye to the rank of an independent medical science. He was born in Potsdam, studied in Berlin, and was then for two years an assistant of Virchow. From 1866 to 1868 he was Graefe's assistant. Then he founded his own institute for ophthalmology, which has been in existence for over forty-three years, and in the records of which hundreds of thousands of patients are inscribed.

In 1870 Hirschberg began to teach in the Berlin university: after nine years he became professor extraordinary, and in 1900 he was made regular honorar-professor. His scientific work, however, was not devoted exclusively to medicine. Even when privat-docent he took up the study of higher mathematics and physics, and worked in the laboratory of Helmholtz. As a result, the scientist was capable of writing on the mathematical principles of medical statistics. Scientific journeys took him into almost all parts of the world, and his diaries on these journeys are very stimulating; especially the description of his journey around the world, and his books on Tunis, Egypt and "From New York to San Francisco." The ancient world attracted his especial interest. He has given a report of his journeys in Greece, and published a glossary and commentary on Aristophanes following the comedies of the Greek classic author almost line for line with well-chosen explanations and translations of all the expressions and idioms that are difficult to understand.

But Hirschberg's monumental work of recent years is the history of his special science, for which he also compiled a model dictionary. In 1899 he published the history of ophthalmology in ancient times following it by the history of this science among the Arabs. With two noted Arabian collaborators, he compiled the material with reference to Arabian ophthalmologists in a special work in two parts. Hirschberg followed this with the history of ophthalmology in the middle ages and into the beginning of modern times, describing its renaissance in the eighteenth century. This volume has been translated into French. The final volume, which appeared last year, treats of the ophthalmologists of Germany in the first half of the nineteenth century. What Hirschberg has accomplished in practical ophthalmology with his literary publications may even now be estimated. A selection of his works was published a few days ago.

I shall further call attention to his articles which appeared in 1869 on medullary cancer of the retina, on the electromagnet in ophthalmology for removal of splinters of iron from the interior of the eye, which has rendered innumerable operations unnecessary, his work on the treatment of myopia, and his articles on the statistics of blindness, on tumors of the eye, and the measurement of the field of vision. Hirschberg is the founder of and from 1877 to date has been the editor of the *Zentralblatt für Augenheilkunde.* Many ophthalmologic societies have elected him an honorary member and he is the president of the Berlin Ophthalmologic Society, corresponding member of the Paris Académie de médecine and an honorary doctor of the University of Athens. On his seventieth birthday, a portrait bust of Hirschberg was installed in his clinic.

As I have already mentioned, Privat-Docent Otto, the director of the Institute for Experimental Therapy established by the Kaiser Wilhelm-Gesellschaft, has been placed in charge of a department in the Institute for Infectious Diseases.

The chair of hygiene at the Bonn university left vacant by the call of Professor Kruse to Leipsic, will not be filled for the winter semester. Privat-Docent H. Selter will be in temporary charge of the hygiene institute.

For the first time, a woman physician has recently been appointed medical inspector for the Berlin public schools.

The Rudolf Virchow Building

At its session, September 18, the city council ratified the proposition of the city government, and provided: 1. For carrying on the Rudolf Virchow-Haus for five years succeeding Oct. 1, 1914, the Berlin Medical Society is granted a yearly stipend of $2.500 (10.000 marks) from the city treasury. 2. The city government is empowered, under conditions to be determined between the city government and the society, to grant the society for the building of the house a sum of $250,000 (1,000,000 marks) to be loaned for ten years at 4 per cent. interest. Thus the Berliner medizinische Gesellschaft is now relieved from all difficulty in this important matter, and the building can be begun at once.

Progress of Hygiene in the German Army

For some time courses in cooking have been held in the Prussian army, attended by officers, medical officers and noncommissioned officers. They are given in Berlin and are intended to instruct in the proper inspection of raw material and the preparing of foods. In the garrisons special windows have been constructed for giving out the food from the company kitchens by which the cleanliness in the rooms has been markedly increased. Quite generally also a set of measures has been adopted to carry out the modern principles of sanitation. For instance, a special waiting-room for the relatives of sick soldiers has been instituted in the large hospitals, and, in addition, the now quite extended provision for medical treatment of the members of families of the subordinate officers has had the result that special rooms for the dental polyclinic treatment of members of families and especially the wives of the non-commissioned officers have been established. Furthermore, the effort has been made to provide suitable opportunities for bathing in the garrisons and at the exercise fields for the troops where these are lacking.

The cooperation of all the factors favoring health has led to the result that the condition with reference to venereal diseases is much more favorable now as compared with other armies. According to the latest special statistics, 11,466 cases occurred annually, or 20.8 per thousand. In the French army the number was 24.4, in the Austria-Hungarian, 54.7, and in the British army 65.9 per thousand, that is, three times the number of infections compared with ours. As an example of the efforts now being made to reduce the morbidity among the soldiers, attention is being paid to the so-called "Exerzierfuss," and other foot troubles resulting from overuse in marching. The success of these efforts is indicated by the lowered percentage of such affections. Until 1901 there were annually about 28.4 per thousand afflicted with foot troubles, and now only 23.3 per thousand.

Marriages

CHARLES WILLIAM LOUIS HACKER, M.D., Albany, N. Y., to Miss Larry Diefendorf of Fort Plain, N. Y., at Watervliet, N. Y., September 17.

REUBEN H. LEAVITT, M.D., Carson, N. Dak., to Miss Marie Lynch-Bloss of Lebanon, Ohio, at Mandan, N. Dak., September 16.

ALBERT P. FITZSIMMONS, M.D., Tecumseh, Neb., to Miss Nellie Reed of Lincoln, Neb., at Schuyler, Neb., July 12.

ERNEST CARL WEIRICK, M.D., Enola, Pa., to Miss Alice C. Hair of Mechanicsburg, Pa., at Gettysburg, Pa., August 21.

CHARLES EDWARD TOWLE, M.D., Dorchester, Boston, to Miss Agnes Gertrude Kelly of Brighton, Mass., September 17.

JOSEPH I. WOISARD, M.D., Bristol, Conn., to Miss Evelyn Bellrose, of North Grosvenordale, Conn., September 16.

JOHN DALE GRAHAM, M.D., Elephant Butte, N. Mex., to Miss Treane Foster of Columbus, Mo., September 11.

GEORGE CARROLL THOMAS, M.D., U. S. Navy, to Miss Bertha Leeta Pratt of West Chester, Pa., September 15.

MILEY BARTON WESSON, M.D., El Paso, Tex., to Miss Emelyn Grace Guernsey of Delmar, N. Y., August 26.

WALTER LEONARD ALBIN, M.D., University Place, Neb., to Miss Anna Fay Hanson, at Crete, Neb., June 26.

HERBERT ROSS CLARK, M.D., Pierce City, Mo., to Miss Maud Mannering of Springfield, Mo., September 13.

CHARLES CRAWFORD ALLEN, M.D., Ada, Minn., to Miss Mary S. Moore of Arlington, Va., September 5.

ALBERT W. NASH, M.D., Dallas, Tex., to Miss Rose Nielson of Fort Worth, Texas, September 16.

SPURGEON SPARKS, M.D., Cumberland, Md., to Miss Lula V. Gibson in Lexington, Va., in August.

EDWARD LYMAN CORNELL, M.D., to Miss Mabelle Jane Cass, both of Chicago, September 16.

JOHN W. HURT, M.D., to Miss Mary Lovelace, both of Atlanta, Ga., September 22.

CARLOS MONTEZUMA, M.D., to Miss Maria Keller, both of Chicago, September 20.

Deaths

Edwin Bayard Harvey, M.D. For many years secretary of the Massachusetts State Board of Registration in Medicine; died at his home in Westboro, September 28, from heart disease, aged 79. He was born in Deerfield, N. H., and after graduating from Wesleyan University, was made professor of natural science in his alma mater. He graduated from Harvard Medical School in 1866, and settled in Westboro, where he became prominent from the start. He was a member of the school board for eighteen years, superintendent of schools for three years, chairman of the board of trustees of the public library, a trustee of the Westboro Savings Bank and of the State Reform School. He was a member of the House of Representatives in 1884-1885 and of the State Senate in 1894-1895. He was a fellow of the American Medical Association and American Academy of Medicine, president of the Massachusetts Medical Society in 1898-1900 and a councilor for more than thirty years. He drew up the bill establishing the State Board of Registration in Medicine, was the principal factor in securing its enactment, and for eighteen years gave his entire time to the work of secretary of the board. He also drafted and carried through the legislature the bill supplying free text-books to the pupils of the public schools of the state. Dr. Harvey was a born politician of the best sort. He was honest, earnest, fearless, practical and loyal to the best interests of the community as well as those of the medical profession. He was a brainy, forceful man who did things, and did them well, and gave far more thought to his work for the profession than to his own material prosperity.

Leonard Ballou Almy, M.D. Bellevue Hospital Medical College, 1876, died at his home in Norwich, Conn., September 28, after a prolonged illness, aged 62. He was born in Norwich, Conn., received his preliminary education in Yale University, and after his graduation in medicine settled in his home at Norwich. He was president, member of the executive board, surgeon and gynecologist to the William W. Backus Hospital, Norwich. He was a member for many years of the American Medical Association, the Association of the Military Surgeons of the United States and of the Connecticut Medical Society. He served throughout the Spanish-American War as Major and Chief Surgeon U. S. V. and Chief Surgeon of the Second Division, Second Army Corps. Dr. Almy was one of the best-known surgeons of New England and was greatly beloved by his associates.

Nathan Jacobson, M.D. One of the most prominent surgeons of Western New York; died in the Syracuse Hospital for Women and Children, September 16, from angina pectoris, aged 56. He was born in Syracuse and was graduated from the College of Medicine of Syracuse University in 1877. After a year abroad, he returned to his home city and began the active practice of his profession, giving especial attention to surgery. In 1885 he was appointed instructor in surgery in his alma mater and three years later was made lecturer on clinical surgery and laryngology, resigning this position to become professor of clinical surgery. He was a fellow of the American Medical Association and was at one time president of the Onondaga County Medical Society. He was also for many years chief surgeon to St. Joseph's Hospital. He was known beyond the limits of the state as a surgeon of rare skill and good judgment, a man of medical learning, of high character and devoted to the ideals of his profession.

Reginald Heber Fitz, M.D. Harvard Medical School, 1868; a fellow of the American Medical Association and American Academy of Medicine; a member of the American Association of Physicians; Shattuck professor of pathologic anatomy until 1902, Hersey professor of the theory and practice of physic until 1908, and thereafter emeritus professor in his alma mater; co-author with Dr. H. C. Wood of a standard textbook on practice of medicine; physician to the Massachusetts General Hospital, Boston; died at his home in that city, September 30, aged 70.

William Herbert Denslow Lewis, M.D. University of Michigan, 1878; born in New York, April 2, 1856, was educated in America and abroad and was licensed in Illinois in 1878; for many years a member of the American Medical Association and in 1906 chairman of the Section on Hygiene and Sanitary Science. He served as president of the attending staff at the Cook County Hospital, and was a member of many societies and state boards for the study of various phases of sanitary science; died in Chicago, October 5, 1913, aged 57 years.

John Randal Stivers, M.D. Long-Island College Hospital, Brooklyn, N. Y., 1894; a fellow of the American Medical Association; visiting physician to King's County Hospital; instructor in physical diagnosis in his alma mater from 1902 to 1904; for several years treasurer of the King's County Medical Society; president of, and attending surgeon to, the Samaritan Hospital; died at his home in Brooklyn, September 18, shortly after a second operation for sarcoma of the brain, aged 43.

Hiram M. Martin, M.D. University of Michigan, Ann Arbor, 1879; a member of the Illinois State Medical Society; president and professor of diseases of the eye and ear in the Chicago Ophthalmic College; president and professor of diseases of the eye and ear and clinical ophthalmology and otology in Jenner Medical College, Chicago; died in the Passavant Hospital, Chicago, September 29, aged 54.

Charles Lester Leonard, M.D. University of Pennsylvania, Philadelphia, 1889; a fellow of the American Medical Association, and American Roentgen Ray Society; one of the earliest Roentgen-ray workers of Philadelphia; died in Atlantic City, September 22, from malignant disease, due to prolonged exposure to the Roentgen rays, after a long illness and repeated surgical operations, aged 52.

William M. Paine, M.D. Vanderbilt University, Nashville, Tenn., 1880; for several years a member of the State Board of Health, but more recently a banker of Aberdeen, Miss.; president of the Mississippi State Medical Association, 1897-1898; died at his home in Aberdeen, September 3, nine weeks after a surgical operation.

LeRoy Marvin, M.D. Hahnemann Medical College, Chicago, 1870; for two years president of the staff of Hackley Hospital, Muskegon, Mich.; president of the Michigan State Homeopathic Society in 1909; died at his home in Muskegon, September 22, aged 64.

Phares N. Becker, M.D. Jefferson Medical College, 1888; a member of the Medical Society of the State of Pennsylvania; died at his home in Mastersonville, September 13, from tuberculosis, aged 50.

William Johnston Beattie, M.D. Bellevue Hospital Medical College, 1889; a member of the New Hampshire State Medical Society, and a practitioner of New York and Littleton, who was deeply interested in the serum treatment of tuberculosis; president of the Littleton (N. H.) Hospital; was struck by an automobile at Bretton Wood, N. H., September 26, and instantly killed, aged 48.

Emmett Claude Chapman, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a fellow of the American Medical Association; first mayor of West Burlington, Iowa; later in charge of the Santa Fe Hospital, Raton, N. Mex.; since 1894, superintending physician and surgeon of the Santa Fe Hospital, Fort Madison, Iowa; died in that institution, September 22, aged 65.

Charles E. Campbell, M.D. New York Homeopathic Medical College, New York City, 1864; a Veteran of the Civil War in which he served as a surgeon of volunteers; a resident of New York City; president of the Dexter Sulphite Pulp and Paper Company, died at his summer home in Block Island, September 12, after an operation for peritonitis September 12, aged 72.

William Farmer, M.D. Hospital College of Medicine, Louisville, 1895, of Fairmount, Ky.; aged 54; was instantly killed as a result of an automobile accident near Fern Creek, while returning from Louisville August 23. In attempting to cross a wooden bridge, his motorcar skidded, crashed through the railing, and fell to the bed of the creek nineteen feet below.

Albert Thornton Birdsall, M.D. University of Minnesota, Minneapolis, 1896; a member of the Medical Society of the State of New York; clinical assistant in surgery in the New York Post-Graduate School and Hospital; consulting surgeon to the Brooklyn Tuberculosis Clinic; died at his home in Brooklyn, September 24, from pneumonia, aged 43.

Charles Anderson, M.D. Medical College of Ohio, Cincinnati, 1874; a fellow of the American Medical Association; formerly an officer of the Medical Corps of the Army, and a resident of Montecito, Cal., died in his mountain cottage, in the Santa Barbara National Forest, September 17, as the result of burns received in a forest fire, aged 63.

Charles Juergens, M.D. University of Goettingen, Germany, 1865; for several years professor of languages in Milwaukee and later a practitioner of Chicago; once editor of the *Cincinnati Courier* and *Anzeiger;* for 40 years a practitioner of Springfield, Ohio; died at his home in that city, September 18, from gastric ulcer, aged 72.

Robert Emory Moore, M.D. Johns Hopkins University, Baltimore, 1906; a member of the Medical Society of the State of New York, and New York Society of Anesthetists; assistant surgeon to King's County and Bedford Street hospitals, Brooklyn; died at Saranac Lake, N. Y., September 13, from tuberculosis, aged 33.

Benjamin W. Hollenbeck, (License, Indiana, 1897); a practitioner for forty-two years; a member of the Indiana State Medical Association and once president of the Laporte County Medical Society; local surgeon for the Wabash Railway at Westville; died at his home, about September 18, aged 63.

Frederick Conrad Smith, M.D. Baltimore University, 1898; of Philadelphia; died in his office in the northeastern part of the city, September 20, from the effects of poison, self-administered, and gunshot wounds, self-inflicted, it is believed, with suicidal intent, while temporarily insane, aged 36.

John Green Curtis, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Medical Society of the State of New York; professor and later professor emeritus of physiology in his alma mater; died at his summer home in Chatham, Mass., September 20, aged 68.

James Seymore North, M.D. Detroit Medical College, 1878; for many years justice of the peace and school trustee of "The Old North Neighborhood" near Lansing, Mich.; died at his home in Lansing, May 4, from nephritic abscess, aged 66.

August Henry Willis, M.D. Tulane University, New Orleans, 1908; of Algiers, La.; while returning from a professional call, September 17, was shot at from ambush and killed at French Settlement, Livingston Parish, aged 30.

William Green McWilliams, M.D. Atlanta (Ga.) Medical College, 1882; died at his home in LaFayette, Ga., July 16, from cerebral hemorrhage, aged 59.

Zachary J. Lantorn, M.D. University of Arkansas, Little Rock, 1885; died at his home in Dalark, September 3, aged 74.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MEDICAL JOURNAL ADVERTISING

And Methods of Obtaining Paid-Up Subscribers

Time was when the postal authorities were lenient with publishers. The names of individuals who had ever subscribed for publications of a certain class were carried on the books indefinitely, whether they paid their subscriptions or not. This permitted a padding of the circulation figures. Of late years, however, the postoffice department requires publishers to have bona-fide paid-up subscriptions if they wish their publications to be carried at the low second-class rate. Certain medical journals have been hard put to it to get a circulation that would be at all attractive to the advertisers, on whose money they depend for continued existence.

Many and various have been the schemes devised whereby the dwindled circulation might be "boosted." Subscriptions could not be given away because the postal laws forbade it. One ingenious method of obviating this difficulty is worked in this fashion: Dr. John Doe writes an article that appears in a reputable medical journal. A few days after its appearance, Dr. Doe receives a letter from the editor and publisher of a medical journal that is in need of a subscription list. He is told that the editor has read his article with much interest and would appreciate receiving from Dr. Doe a brief abstract of it. He does not expect the doctor to go to the trouble of making this abstract for nothing. He will, therefore, on receipt of the abstract credit Dr. Doe with three years' subscription for himself or for one year for himself and one year for each of any other two doctors he may name. For every doctor that bites on this scheme the publisher increases his circulation by three copies and the federal officials are assured that they are paid-up subscriptions—not paid for in cash, it is true, but in "abstracts."

All of this preliminary to a letter recently received:

> *To the Editor:*—Enclosed find letter which speaks for itself. Now what I should like to know from you is the following: Is the *Charlotte Medical Journal* all it should be? Should a doctor contribute to a journal—thereby adding to its prestige and circulation—that carries questionable matter in the advertising pages? If the above journal is off color, does that act as a bar for good men to contribute?
>
> Very truly yours,
>
> L. J. GENELLA, M.D., New Orleans, La.

The letter which our correspondent encloses is on the stationery of the *Charlotte Medical Journal* and signed by the editor of that journal. Here it is:

> "My Dear Doctor Genella:—I have just looked over an article of yours published in the *New Orleans Medical and Surgical Journal* entitled 'Clinical Studies in Pituitary Irritation, with Report of Case.' I would be very glad indeed to have you send me a manuscript or article for the *Charlotte Medical Journal*. Your style of writing is very attractive.
>
> "If you will send me an article for the journal, I will be glad to publish same and will place your name on my complimentary mailing list. Under separate cover I am sending you a copy of the journal.
>
> "Of course I will expect the article to be typewritten."

Whether or not this is a modification of the "abstract" scheme or an attempt to boost the circulation of the *Charlotte Medical Journal* are questions we shall not attempt to answer. As to the questions propounded by our correspondent, they have been answered many times in these pages. We turn to one of the recent copies of the *Charlotte Medical Journal* and examine its advertising pages. On one of the first we find Anasarcin, a product whose fraudulent character was described at some length in THE JOURNAL, May 4 and 11, 1907. On another page we find Tongaline, which has also come in for a fair share of attention (see THE JOURNAL, Sept. 23, 1906, and May 10, 1913). A little farther over we find a half-page advertisement of Bannerman's Intravenous Solution, a nostrum first exploited as a "consumption cure" and now as a cure-all (see THE JOURNAL, May 31, 1913). Cactina Pillets (see THE JOURNAL, March 12, 1910), Hagee's Cordial of the Extract of Cod-Liver Oil (see THE JOURNAL, Oct. 13, 1906) Burnham's Soluble Iodin (see THE JOURNAL, March 28, 1908), Ecthol (see THE JOURNAL, March 13, 1909), Bromidia (see THE JOURNAL, April 21, 1906), Papine (see THE JOURNAL, April 29, 1911), Phenalgine—two advertisements—(see THE JOURNAL, Jan. 13 and 27, 1906, and Jan. 27, 1912) and Sal Hepatica (see THE JOURNAL, March 26, 1910) are some more products which have attained unenviable notoriety but found a safe haven in the advertising pages of the *Charlotte Medical Journal*. Neither must we fail to refer to the advertisement of Duffy's Malt Whiskey (see THE JOURNAL, Nov. 23, 1912), which looks thoroughly at home.

Does our correspondent—in fact, does any conscientious physician having the interest of scientific medicine at heart—want to do anything that will tend to perpetuate therapeutic fraud? Subscribing for or contributing to medical journals whose income is largely derived from nostrums that are as vicious as many of the "patent medicines" advertised in the daily press hampers the medical profession in its fight for honesty in therapeutics and renders largely abortive its fight against fraudulent "patent medicines." So long as the accredited organs of the medical profession tolerate fraudulent "ethical proprietaries" in their advertising pages, just so long will the protests of physicians against the swindling advertisements of "patent medicines" in the daily press fall largely on deaf ears—and justly so.

AN EDITOR'S VIEW OF THE TRAVELING "DOCTOR"

The childlike credulity of the average person with regard to the superlative qualities of the itinerant quack who loudly proclaims his abilities in flamboyant advertisements, appears strange to the editor of the Canon City (Colo.) *Daily Record*. In the issue of Sept. 6, 1913, concerning traveling doctors in general, he says (no doubt having in mind some specific instances of grievous disappointment, or worse, in some of his too trustful neighbors and friends):

> "It's a strange thing to us why Canon City men or women would trust their eyes or their health in the hands of some unknown traveling doctor of any kind. It's a strange thing to us why any Canon City man would buy a suit of clothes or a bunch of teas or groceries from a strange agent whose word and business methods are wholly unknown to the buyer, and whose goods must be taken on faith in a stranger. But it is infinitely more incomprehensible why a man would trust his eyes, or the eyes of his wife or child, to the care of an unknown man whose ability, skill and professional reputation is wholly unknown. The eye is about the most sensitive and delicate organ about the body, and the one a person can least afford to take any chance with. You might afford to take a chance with a stranger on fixing up your corns or ingrown toe nails, but when it comes to the eye or some delicate question of health you should be pretty well satisfied that the man you go to is all right. And if the man lives in Canon City and you can go back to see him any time, he is pretty apt to give your case a good deal more thoughtful care than the man who is here to-day, gets your money, and is off to-morrow, perhaps never to return again. Think it over."

"THE LESSON OF THE FRIEDMANN 'CURE'"

We have commented frequently during the last year or two on the fact that the newspapers are taking more and more interest in public health matters, and we have had occasion to copy into our Economics or Propaganda departments matter that appeared in newspapers verifying this. An editorial appeared in the Boston *Herald*, Sept. 23, 1913, under the title given above. It is too good not to quote:

> "The report in the current number of THE JOURNAL of the American Medical Association utterly discrediting the Friedmann 'cure,' on the basis of the unanimous results of investigators, may seem to partake of lily-gilding to those who long ago were convinced of the man's charlatanry, and of the utter worthlessness of his serum.

"These results cannot be repeated too often. The success of the Friedmann advertising is, unfortunately, still bearing fruit. Like the fisherman's genii in the Arabian Nights, it has grown to such proportion that it can no longer be bottled up. And there are men bearing the medical degree low enough to take advantage of the well-known hopefulness of the consumptive to engage in this wretched business.

"If the great mass of the people, whose credulity makes possible the success of the 'sure cure,' be it for tuberculosis, or cancer 'without the use of the knife,' or for any one of the thousand-and-one ailments that the human flesh is heir to, will but read aright the lesson of the Friedmann fake, it will indeed have proved a 'cure.' It is this:

"No right-thinking physician ever associates with a private remedy. No honorable member of the profession can have any scientific secret from his colleagues.

"No reputable physician ever guarantees—anything. There is no such thing as a sure cure. Every scientific man knows that the human equation cannot be bound by hard-and-fast rules.

"The man with the secret or a guarantee is apt to be a faker. His aim is usually to relieve the pocketbook of the victim.

"Should the misery left in the Friedmann wake, the deluded hopes, the squandered savings, and even the hastened deaths, result in the awakening of the public intelligence in regard to the whole tribe of self-advertising harpies—if from it will come a greater trustfulness in the verdicts of the medical profession—the lesson may not have been in vain."

ANUSOL SUPPOSITORIES

"In Hemorrhoids and all Inflammatory Rectal Diseases, let your first thought Continue to be Anusol Hemorrhoidal Suppositories; they have Earned your lasting Confidence." Thus speaks an attractive folder recently sent to physicians. With a prodigal use of superlatives, the medical profession is told that these suppositories have for years "maintained their World-Wide Reputation" as the "Most Effective, the Safest . . . the Most Economical and . . . the Most Credit-Bringing of all Topical Rectal Remedies." The short memory of the public is notorious; from the point of view of the proprietary exploiter, the short memory of the medical profession must be equally well known. How, otherwise, would a firm try to make physicians believe that a product had "earned" their "lasting confidence" when the result of an examination by the Association's chemists, published in The Journal,[1] had shown that Anusol Hemorrhoidal Suppositories contained practically no "anusol." Moreover, as the Association's findings were a practical verification of the findings of a foreign chemist who also had failed to find any "anusol" in Anusol Suppositories, it is not quite clear what is meant by the term "world-wide reputation." Incidentally, the observant physician will notice that the list of the ingredients given on the Anusol Suppositories labels of 1913 differ from those of the vintage of four years ago. The label of the old boxes gave the ingredients thus:

> Bismuth, iodo-resorcinsulfon (Anusol), Zinc oxydat. pur., Balsam Peruv., Ol. cacao, Unguent cereum.

On the latest label, however, we find these ingredients given:

> "Bismuth oxyiodid and resorcinsulphonate with Zinc oxid and Balsam Peru. incorporated in suitable base."

What will the formula be four years hence?

THE SANATOGEN "GRAND PRIX"

A number of letters have been received recently expressing surprise that Sanatogen had been granted a "grand prix" at the Exhibition of Medical and Surgical Material held in London at the same time that the Seventeenth International Congress of Medicine was in session. The correspondents have asked what such an "honor" meant. The company which exploits Sanatogen in the United States has not been slow to apprise the American public of the award. It has gone further and has written the advertising managers of magazines—including those that had refused Sanatogen advertisements—directing their attention to the fact that Sanatogen was awarded a "grand prize" and opining that "this unusual distinction" should make plain "the desirability of the presence of Sanatogen in the advertising columns of your esteemed publication."

Those familiar with the methods of awarding prizes, medals and certificates to commercial firms and their products at expositions and exhibitions attach little weight to the "honors" thus conferred. It is a fact that most purchasers of large—and expensive—exhibit space at such exhibitions receive some kind of award which, it is tacitly understood, will be a useful advertising asset. Every one can call to mind many food products of mediocre quality that have flaunted on their labels the gold medals received at various expositions.

Nevertheless, it seemed worth while to find out just what the connection was between the commercial exhibition at which Sanatogen received the grand prize and the Seventeenth International Congress of Medicine. The following facts were developed: The commercial exhibition was entirely distinct and separate from the scientific exhibit of the Congress. It was managed and conducted by a British drug journal which had been giving annual "exhibitions" of its own for some years past, and this took the place of its regular exhibition. Immediately after the awards were made public the advertising pages of this drug journal were filled with full-page advertisements of the various products that received prizes. It may interest our readers to know that while the cottage-cheese-glycerophosphate product Sanatogen received a "grand prize" two other proprietary cottage-cheese-glycerophosphate products received "gold medals" at the same time. In the pharmaceutical department of the exhibit a widely—and fraudulently—advertised "patent medicine" received a silver medal! From the facts given it should not be difficult to appraise at its right value the "honor" conferred on Sanatogen. The fact that the exploiters of this preparation are trying to make capital out of this "award" is significant.

Among the members of the Award Jury whose names were given by this drug journal were three men of prominence in Great Britain, to whom we have written. A reply has been received from one, Dr. Stephen Paget, who says: "I was not on the jury, nor do I know anything about the matter. . . . I had nothing whatever to do with the awarding of prizes."

Correspondence

How to Secure Reliable Drugs

To the Editor:—The recent article by M. I. Wilbert on "Carelessness in Pharmacy as a Reason for a Restricted Materia Medica" (The Journal, July 19, 1913, p. 189), very truly sets forth the complications and drawbacks incidental to the evolution of the modern drug-store. As a general emporium for all sorts of small wares and ready-made medicines, for confectionery, cigars and fancy articles, it may be a social necessity as stated, and undoubtedly is so. With the further elaborations of the soda-fountain, the tables for ice-cream customers and the great amount of profit secured along these lines, it is no wonder that the careful compounding of pure drugs should be the smallest element in the business and consequently become neglected.

Mr. Wilbert in his article suggests reform of the drug-store, but specifies shops devoid of "side lines" and equipped with the necessary analytical apparatus. A few such shops still exist in the large cities, but they are so distinctly in the minority that they can exercise but little influence to benefit the general public. The attractive profits of the "side lines" are so great that they carry almost all druggists with them, and, so far as I can judge, the careful handling of drugs is more and more neglected.

A further difficulty arises from the fact that a drug-store supplying the patients of a number of physicians has to include in its stock the favorite drugs and combinations prescribed by each of them—some of these rarely called for. With our large pharmacopeia and the great variety of products of the manufacturing chemists, to say nothing of the legion of nostrums, the druggist may well feel bewildered.

---

[1] Oct. 2, 1909.

The suggestion of Mr. Wilbert that physicians should "take an active interest in evolving a restricted or preferred materia medica list" is certainly desirable; but when one druggist serves a half dozen or more physicians, it may be rather difficult to get them all to keep step in this movement.

Altogether, it must be confessed, the preoccupation of the druggist with his so-called "side lines" and the demoralization of the trade and the public with nostrums make the reform of his business exceedingly difficult. Doubtless it can be accomplished in certain instances under the personal influence and direct supervision of the physician, but in other cases it is practically impossible.

This condition of things is particularly unfortunate for the physician. He is responsible for the life and welfare of the patient and many times pins his faith on the activity of a single medicine. Should this remedy be unreliable or wrongly compounded, or should successive fillings of the prescription vary in activity, both the physician and the patient may suffer.

The matter of reliable drugs is so extremely important that any physician who is unable to obtain satisfactory service from druggists in his neighborhood is justified in supplying his own drugs.

More than twenty years ago I was in the position which I have just indicated, and in justice to my patients adopted the method of providing and dispensing my own medicines. Although I began this with many misgivings, it has worked exceedingly well. Carefully choosing the sources of my drugs and repeatedly testing their clinical efficacy, I can expect definite results from them. The patient gets the first dose promptly, usually before my visit is ended. Thus many uncertainties are avoided. The practice of dispensing does away with the unauthorized refilling of prescriptions and with the annoying habit which many patients have of lending them to their friends. The time required to keep my stock in order is not so great as I supposed it would be. It proves to be well spent, for it is closely interwoven with the art of medicine, in that it familiarizes me with the appearance, taste and other physical properties of my remedies. The expense in my hands has never exceeded 3 per cent. of my total receipts from practice. The method produces the greatest economy of material and of expense. It is interesting to find, after twenty years' use, that dispensing medicines has not led me to resort to the use of the ready-made nostrums or "shotgun" formulas. Examination of my hand-bag to-day shows that out of sixty-three medicines which I habitually carry, forty-seven contain only a single ingredient. The use of alkaloids and of the tablet form of medication greatly facilitates the carrying of medicines, and many tablets can be dissolved and given in liquid form if desired.

I do not wish to be understood as advocating that all physicians should dispense their medicines. Such a course would be unjust to some druggists. The well-equipped and conscientious druggist who has a high standard of work and lives up to it should be encouraged. On the other hand, I firmly maintain that no physician should jeopardize his patients or his own reputation by relying on a prescription service which he knows to be poor. He should, if necessary, provide and dispense his own medicines.

Oliver H. Howe, M.D., Cohasset, Mass.

Failure of Bacterial Sprays to Destroy Klebs-Loeffler Bacillus

To the Editor:—From time to time numerous investigators have advocated the use of bacterial sprays, usually fluid cultures of the *Staphylococcus aureus* or the lactic acid bacillus, for "freeing" the throat secretions of diphtheria carriers from the Klebs-Loeffler bacillus. This procedure defeats the practical value in employing culture methods for the release of quarantine. Frequently when cultures are submitted for diagnosis, the normal throat organisms will outgrow the Klebs-Loeffler bacilli and give negative results. Although these instances are the exception, the result can be more readily obtained by the introduction of pure bacterial sprays of other organisms. During convalescence, when the diphtheria bacillus is present in comparatively small numbers and usually confined to the deeper follicles of the tonsillar structure, cultures made in the usual manner will fail to reveal any other organism than that in the bacterial spray.

The laboratory of the Buffalo Department of Health has made a very careful investigation and finds that the introduction of bacterial sprays does not destroy the Klebs-Loeffler bacilli in throat secretions. On account of the predominance of the organism introduced in the spray often the cultures do not reveal the growth of the Klebs-Loeffler bacilli, but this bacillus still remains present in the source from which the culture was made and by a cessation of spraying will permit it to reappear in cultures.

For these reasons the use of bacterial sprays for obtaining "diphtheria-free cultures" furnishes false security, and defeats the efficacy of the culture method for determining the time for the release of quarantine. Diphtheria-free cultures can be obtained by the introduction of the bacterial spray, but the diphtheria organisms may still exist and are in no way influenced by the presence of the bacteria in the spray. Persons released from quarantine by such cultural evidences may still remain "carrier sources" in the transmission of diphtheria.

William G. Bissell, M.D., Buffalo, N. Y.
Chief, Bureau of Bacteriology, Department of Health.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VACCINE TREATMENT OF PNEUMOCOCCIC AFFECTIONS

To the Editor:—Please give the consensus of opinion as to the efficacy of the treatment of lobar pneumonia by means of Pneumococcic Bacterin.

W. B. Linton, M.D., Rochester, Minn.

Answer.—There can hardly be said to be a consensus of opinion on this subject. The vaccine treatment of pneumococcic affections is still on trial. So far there is little evidence of its efficiency. The special article on "Bacterial Vaccine Therapy: Its Indications and Limitations," The Journal, June 28, 1913, p. 2046, says, "There is little evidence that stock or autogenous vaccines are of value in pneumococcic infections." Recent books on practice, as a rule, say nothing about this treatment. R. W. Allen ("Bacterial Disease of Respiration," pp. 115 et seq.) gives statistics from various sources, most of which are favorable, but the numbers of cases are so small that no reliable conclusion can be drawn from them. Schorer ("Vaccine and Serum Therapy," p. 158) says, "Active immunization will probably never be of great value in the majority of cases of lobar pneumonia due to pneumococci, because the crisis comes on about the time the results can be expected from the vaccination."

MEDICAL INSPECTION OF SCHOOLCHILDREN

To the Editor:—Can you refer me to literature relating to the subject of medical inspection of schoolchildren?

C. A. W. Zimmermann, M.D., East St. Louis, Ill.

Answer.—The following is a list of references on the subject:

Steven, E. M.: Medical Supervision in Schools. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany and Switzerland. Chicago Medical Book Co., 1910. Price $2.
Gulick, L. H., M.D., and Ayres, L.P., Ph.D.: Medical Inspection of Schools, Russell Sage Foundation Publication, Fourth Edition, 1913. Price $1.50.
Hogarth: Medical Inspection of Schools, New York, Oxford University Press. Price $2.
Cornell: Health and Medical Inspection of School Children, Davis. Price $3.
Medical Inspection of Schools. A Summary of Existing Legislation. Issued by Council on Health and Public Instruction of the American Medical Association, 1913.

School Inspection in Rural Communities, The Journal, Jan. 4, 1913, p. 70.
Jones, R. W.: Medical Inspection of Schools, *Wisconsin Med. Jour.*, November, 1912; abstr., The Journal, July 22, 1911, p. 314.
Hyde, G. E.: Medical Inspection of Schools, *Northwest Med.*, December, 1912; abstr., The Journal, Dec. 9, 1911, p. 1943.
Holmes, G. H.: Function of Medical Inspection in Checking Retardation. *Jour. Med. Soc. New Jersey*, January, 1913.
Kinney, R. H.: Plan for Medical Inspection of Country Schools, *Wisconsin Med. Jour.*, January, 1913.
Gantt, L. R. H.: Medical Inspection of Schools in South Carolina, *South. Med. Jour.*, April, 1913.
Parsons, J. G.: Health Supervision of Schools, *Journal-Lancet*, Aug. 1, 1912.
Dixon, S. G.: Medical Inspection of School Children, *Pennsylvania Med. Jour.*, September, 1912.
Holmes, G. J.: Educational Hygiene and Prophylaxis, *Jour. Med. Soc. New Jersey*, October, 1912.
Holmes, G. J.: Improved Medical Inspection of Public Schools and Its Results, *Jour. Med. Soc. New Jersey*, December, 1912.
Albert, H.: Diphtheria-Carriers and Their Relationship to Medical Inspection of Schools, *Am. Jour. Public Health*, Oct. 1, 1912.
Ayers, S. C.: Civic Medical Inspection of School Children with Special Reference to Diseases of Eye, Ear and Throat, *Lancet-Clinic*, Dec. 23, 1912.
Ayers, S. C.: Civic Medical Inspection of School Children with Special Reference to Diseases of Eye, Ear and Throat, *Jour. Ophth. and Oto-Laryngol.*, Jan. 19, 1912.
Albert, H.: Diphtheria-Carriers and Medical Inspection of Schools, *Iowa Med. Jour.*, Dec. 18, 1912.
Goodenough, E. W.: Some Problems Connected with Medical Inspection of Public Schools, *Yale Med. Jour.*, Nov. 19, 1912.
Montgomery, A. B.: Medical Inspection of Public Schools, *Boston Med. and Surg. Jour.*, December, 1912.
Story, J. B.: Medical Inspection of Schools and Schoolchildren, *Dublin Jour. Med. Sc.*, January, 1912.

ADMINISTERING SALVARSAN A SURGICAL PROCEDURE

To the Editor:—1. Is the administration of salvarsan considered a medical or surgical procedure? 2. If in the clinic the diagnosis f syphilis is made and salvarsan is advised, to which department hould the patient be referred?

J. R. Robinson, Augusta, Ga.

Answer.—1. The administration of salvarsan would prob[illegible]ly be classed as a minor surgical procedure.

2. If in the clinic the diagnosis of syphilis is made and alvarsan is advised, that department should undertake the dministration of the drug which is best fitted to do so proprly. If the case be one of cerebrospinal syphilis, it could ardly be properly referred to the department of dermatology r genito-urinary diseases, which might very properly take are of all primary and secondary manifestations. In instances .n which a doubt arises, the case might best be referred to the surgical department, where the drug could be administered under the proper aseptic and technical precautions.

SCHULTZE'S INDOPHENOL-OXYDASE REACTION

To the Editor:—Please give the principles and technic of Schultze's indophenol-oxydase reaction as mentioned in the abstract of Dunn's paper, The Journal A. M. A., June 14, 1913, p. 1924.

J. B.

Answer.—The reaction is described and explained by Dunn as follows:

The films were fixed by immersion in 1 per cent. osmic acid for five seconds. They were then washed thoroughly in running water for five minutes and brought into a mixture of equal parts of dimethylparaphenylenediamin, 1/5 per cent. aqueous solution, and alpha-naphthol, saturated aqueous solution, for periods varying up to half an hour. The films were then washed for a few minutes in running water and mounted on slides in a mixture of equal parts of commercial water-glass and tap-water. Normal blood-films treated in this way show a deep blue staining of the polymorph leukocytes due to formation of indophenol in their protoplasm; this occurs by virtue of the oxydizing ferment or oxydase present in these cells. For details of the reaction see Schultze, *München. med. Wchnschr.*, 1909, lvi, 167, and Dunn, *Jour. Path. and Bacteriol.*, 1910, xv, 20.

A BOOK ON ENZYMES AND THEIR ACTION

To the Editor:—What works can you recommend as the best on the subject of enzymes and their relation to infectious diseases?

Joseph J. Nacker, M.D., Detroit.

Answer.—We know of no book which discusses definitely the relation of enzymes to infectious diseases. The following book gives a complete discussion of enzymes and their action:

Cohnheim, Otto: Enzymes: Six Lectures Delivered under the Huter Lectureship Foundation at the University and Bellevue Hospital Medical College, New York, John Wiley & Sons, 1912, price $1.50

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, Little Rock, November 11-12. Sec., Dr. W. S. Stuart, Pine Bluff; *Homeopathic, Little Rock*, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

Connecticut: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

District of Columbia: Washington, October 14-16. Sec., Dr. George C. Ober, 125 B St., S. E.

Florida: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

Georgia: *State Capitol, Atlanta*, October 14. Sec., Dr. C. T. Nolan, Marietta.

Kansas: National Hotel, Topeka, October 14. Sec., Dr. H. A. Dykes, Lebanon.

Louisiana: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 24 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

Maine: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

Michigan: Capitol Bldg., Lansing, October 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Mississippi: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

Nebraska: Lincoln, *November 12-13.* Sec., Dr. H. B. Cummins, Seward.

Nevada: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

New Jersey: *State House*, Trenton, October 21-22. Sec., Dr. H. G. Norton, 429 E. State Street.

New Mexico: Santa Fe, October 13. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Muskogee, October 14. Sec., Dr. John W. Duke, Guthrie.

South Carolina: *Columbia*, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

Texas: *Bender Hotel, Houston*, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

Wyoming: State House, Cheyenne, October 15. Sec., Dr. J. B. Tyrrell, Laramie.

Georgia Reciprocity Report

Dr. C. T. Nolan, secretary of the Georgia Board of Medical Examiners, reports that seventeen candidates were licensed through reciprocity from January 1 to June 10, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of California, Los Angeles	(1903)	Virginia
George Washington University, D. C.	(1908)	N. Carolina
Atlanta College of Physicians and Surgeons	(1901)	N. Carolina
College of Physicians and Surgeons, Chicago	(1897)*	Missouri
American Medical Missionary College, Chicago	(1900)	Iowa
Fort Wayne College of Medicine	(1891)	Michigan
Louisville Medical College	(1874)	Mississippi
University of Louisville	(1910)	Tennessee
Baltimore Medical College	(1911)	Maryland
Maryland Medical College	(1910)	Maine
Ohio Medical College	(1891)	Indiana
Memphis Hospital Medical College	(1904) (1911)	Tennessee
Meharry Medical College	(1907)	Louisiana
University of Tennessee (1901) Kentucky; (1911) Tennessee; (1911) North Carolina.		
Medical College of Virginia	(1901)	Virginia

* Official information from the college says this man is not a graduate.

Philippine Islands

Dr. C. E. Norris, secretary of the Philippine Islands Board of Medical Examiners, reports that since Jan. 1, 1913, 27 candidates have been licensed to practice medicine. The following colleges were represented:

College	Year of Graduation
Northwestern University	(1911)
Baltimore Medical College	(1909)
St. Louis University	(1908)
Jefferson Medical College	(1892) (1912)
Philippine Medical School	(1913)
St. Tomas University	(1913, 21)

Virginia June Report

Dr. Herbert Old, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 24-27, 1913. The number of subjects examined in was 18; total number of questions asked, 101; percentage required to pass, 75. The total number of candidates examined was 96, including 3 osteopaths, of whom 72 passed, including 3 osteopaths, 21 failed, and 3 withdrew. Five candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University, D. C.	(1912)	84
George Washington University, D. C.	(1913)	76
University of Louisville	(1911)	75
Johns Hopkins University	(1913)	84, 89
Maryland Medical College	(1911) 75; (1913)	76, 82
Baltimore Medical College	(1913)	79
University of Maryland	(1913)	82, 88
Long Island College Hospital, N. Y.	(1895)	75
North Carolina Medical College	(1913)	79, 82
Jefferson Medical College	(1913)	87
University of Tennessee	(1893)	81
University of Virginia	(1913)	81, 82, 83
Medical College of Virginia (1910) 75; (1912) 77, 77; (1913) 75, 76, 76, 78, 79, 79, 80, 80, 80, 84, 85, 86, 88.		
University College of Medicine, Richmond (1903) 83; (1912) 75, 79, 91; (1913) 75, 75, 75, 75, 76, 77, 77, 78, 78, 78, 79, 80, 80, 80, 80, 81, 81, 81, 82, 82, 82, 82, 84, 85, 85, 85, 88, 89.		
Aberdeen University	(1901)	89
University of Naples, Italy	(1893)	75

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1912)	66
Maryland Medical College	(1909)	71
Leonard Medical School	(1911) 59; (1912)	67
Lincoln Memorial University	(1912)	54
Meharry Medical College	(1907)	59
University College of Medicine, Richmond	(1913)	65
Medical College of Virginia (1912) 67; (1913) 63, 67, 67, 68, 68.5, 69, 70, 70, 71, 72, 72, 72, 73.		

LICENSED THROUGH RECIPROCITY

College	Grad. Year.	with Reciprocity
Howard University, D. C.	(1903)	N. Carolina
University of Louisville	(1909)	Kentucky
College of Physicians and Surgeons, Baltimore	(1886)	Tennessee
University of North Carolina	(1908)	N. Carolina
University of Virginia	(1906)	Dist. Colum.

Oregon July Report

Dr. L. H. Hamilton, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 1-3, 1913. The number of subjects examined in was 15; total number of questions asked, 108; percentage required to pass, 75. The total number of candidates examined was 87, including 18 osteopaths and 12 non-graduates, of whom 65 passed, including 16 osteopaths and 4 non-graduates and 22 failed, including 2 osteopaths and 8 non-graduates. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1911)	82.5
George Washington University	(1913)	81.9
College of P. and S., Atlanta	(1913)	82.4
College of P. and S., Chicago	(1901)	91.3
Illinois Medical College	(1901)	81.6
Hahnemann Medical College, Chicago	(1904)	78.5
Chicago Homeopathic Medical College	(1895)	82.7
Rush Medical College	(1913)	83, 84.5
Northwestern University	(1912)	82.3, 85.5
College of P. and S., Keokuk	(1908)	78.8
University of Louisville	(1908) 76; (1913)	79.4
Kentucky University	(1907)	77
Kentucky School of Medicine	(1903)	78.9
Johns Hopkins University	(1906) 86.2; (1910)	85.3
Baltimore Medical College	(1911)	79.7
University of Michigan, College of Medicine and Surgery (1877) 79.2; (1909) 81.7; (1912) 87.4.		
Kansas City Medical College	(1904)	80.4
Washington University, St. Louis	(1910)	77.4
American Medical College, St. Louis	(1913)	83
Barnes Medical College	(1908)	79.8
Cleveland-Pulte Medical College	(1913)	78 9
University of Oregon ((1912) 78.4, 79.8; (1913) 80.6, 84.4, 84.5, 89.		
Willamette University (1905) 82.2; (1912) 77.4; (1913) 78.3, 79.4, 81.6.		
University of Buffalo	(1897)	82.1
Jefferson Medical College	(1911) 83.6; (1912)	83.7
Woman's Medical College, Pennsylvania	(1906)	86.5
Hahnemann Medical College, Pennsylvania	(1908)	83.2
Trinity Medical College, Ontario	(1891)	77.2
University of Kiel, Berlin	(1903)	77.5
Undergraduates		79.8, 81, 83.7, 88.1

FAILED

College	Year Grad.	Per Cent.
College of P. and S., San Francisco	(1910)	72.1
University of California	(1876)	64.9
Dearborn Medical College, Chicago	(1906)	74.4
Kentucky School of Medicine	(1908)	75.6
St. Louis University	(1908)	70.3
Willamette University (1912 70.8, 73.5, 76.1, 76.3; (1913) 74.3, 74.9.		
Woman's Medical College, Pennsylvania	(1901)	72.6
Undergraduates		54.7, 56.2, 69.4, 70.4, 72.8, 73.1, 76.1, 77.3

Book Notices

Medical Inspection of Schools. By Luther Halsey Gulick, M.D., and Leonard P. Ayres, Ph.D. Fourth Edition. Russell Sage Foundation Publication. Cloth. Price, $1.50. Pp. 224, with illustrations. New York: Survey Associates, Inc., 1913.

Medical Supervision in Schools. Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany and Switzerland. By Edward Millar Steven, M.B., Ch.M. Cloth. Price, $2. Pp. 268, with 40 illustrations. Chicago: Chicago Medical Book Company, 1910.

The Posture of Schoolchildren. With Its Home Hygiene and New Efficiency Method for School Training. By Jessie H. Bancroft, Assistant Director Physical Training, Public Schools, New York City. Cloth. Price, $1.50 net. Pp. 327, with 135 illustrations. New York: The Macmillan Company, 1913.

School Hygiene. By Fletcher B. Dresslar, Ph.D., Specialist in School Hygiene and School Sanitation, United States Bureau of Education. Cloth. Price, $1.25 net. Pp. 369, with 51 illustrations. The Macmillan Company, 1913.

Helping Schoolchildren. Suggestions for Efficient Cooperation with the Public Schools. By Elsa Denison of the New York Bureau of Municipal Research. Cloth. Price, $1.40 net. Pp. 349, with illustrations. New York: Harper & Brothers, 1912.

The growing interest in school hygiene and its problems is well shown by the marked increase in books on the subject which have appeared in the last few months, of which the five under consideration are typical. The volume by Gulick and Ayres is a revision of the book on "Medical Inspection of Schools," published by the Russell Sage Foundation in 1908. The demand was such that three editions of the first book have been issued. This is revised up to January, 1913. Those familiar with the first edition will not require any further recommendation. To others it may be said that the volume contains practically all the essential information needed for becoming familiar with this subject of growing importance. The illustrations and charts are particularly good. Chapters on history and present status of school inspection, detection of contagious diseases, physical examinations, school nurse, cost and salaries and legal provisions are among the most important.

The student of medical school inspection will be able to compare the methods developed in England with those in this country by reading Steven's book on "Medical Supervision in Schools." While Steven discusses the methods adopted in Canada, the United States, Germany and Switzerland, the bulk of his book is devoted to conditions in England.

The social side of school conservation work is presented in Miss Elsa Denison's book, "Helping Schoolchildren," which is devoted to suggestions for efficient cooperation with the public schools. Without taking up the technical side of school inspection or management, Miss Denison discusses private giving, short cuts to publicity, community problems, the special opportunities for women interested in the improvement of school efficiency, the relation of physicians to the schools, and the possibilities of cooperation on the part of churches, business men and citizens in general. While necessarily general and somewhat discursive in its methods, the book contains many suggestions of value and much interest.

The extent to which the consideration of school hygiene is being carried is shown by Miss Jessie H. Bancroft's book on "The Posture of Schoolchildren." The book is copiously illustrated, although some of the photographs, especially reproductions of celebrated paintings and statues, hardly seem worth the space and expense. To the school physician, the conscientious teacher or the parent the book will be of interest and value, even if positive conclusions on all points are not possible at present.

Fletcher B. Dresslar is the special agent of the United States Bureau of Education on School Hygiene and Sanitation. His book on "School Hygiene" is therefore worthy of special attention on account of the broad sources of information at his disposal. Dresslar has not written for the specialist, but for the teacher. He discusses playgrounds, location and construction of school buildings, lighting of schoolhouses, desks, baths, water-supply, ventilation, heating, physical defects of pupils, medical inspection, and what all will agree is perhaps one of the most important of subjects, although generally neglected by writers on school hygiene, the cleaning of schoolrooms, and the qualifications and duties of the school janitor. The book contains a large amount of carefully collected information on a comparatively new subject, and cannot be overlooked by any careful student of school hygiene. The general arrangement of the book is excellent, although the paper and binding are not what it deserves.

Organic Chemistry. Including Certain Portions of Physical Chemistry for Medical, Pharmaceutical and Biological Students (with Practical Exercises). By Howard D. Haskins, A.B., M.D., Associate Professor of Organic Chemistry and Bio-Chemistry, Medical Department, Western Reserve University. Second Edition. Cloth. Price, $2 net. Pp. 430. New York: John Wiley & Sons, 1913.

There is no denying the fact that there is a promising field for a brief and yet comprehensive work on organic chemistry for medical students. The majority of books on the subject have not kept pace with the advances made along lines of organic, biologic, physical and physiologic chemistry as demanded by the up-to-date medical man. These increased demands have multiplied the difficulties in the way of properly presenting the subject to large classes of medical students, and any effort which in the least tends to lessen these difficulties is welcome. This book is a step in the right direction. The demand for foundation principles of organic analysis is very well satisfied in the four chapters devoted to the subjects of purification and identification of organic compounds, molecular weight determinations, elementary analysis, etc. This demand is still further satisfied by the excellent laboratory exercises to be found throughout the book. While we might prefer to see the various groups of compounds arranged in the order of their increasing complexity as to number of elements, that is, CH compounds first, then CHO, then CHO with halogen, sulphur, etc., the present arrangement will perhaps prove more popular. Throughout, more than usual attention is given to medicinal substances, yet still more space might be devoted to this important feature. Structural formulates are used liberally and their value cannot be denied, yet there is a tendency to place too much stress on them and some, if given at all, should be more complete. For example, the "suggested" structure for hexamethylenamin (p. 192) might well be omitted, as also the structure of trional and tetronal (p. 195). The brief chapter on alkaloids could with advantage be much enlarged. The structural formulas for these alkaloids teach little to the medical student, and the space devoted to them could well be used for a more comprehensive discussion of the physical and chemical properties of alkaloidal substances. Since laboratory exercises are so frequently introduced, one or two on behavior, isolation and identification of alkaloids would not be amiss.

Anatomische Grundlagen wichtiger Krankheiten. Fortbildungsvorträge aus dem Gebiet der pathologischen Anatomie und allgemeinen Pathologie für Aerzte und Medizinalpraktikanten: Von Dr. Leonhard Jores, Professor der pathologischen Anatomie an der Kölner Akademie für praktische Medizin. Paper. Price, 15 marks. Pp. 382 with 250 illustrations. Berlin: Julius Springer, 1913.

The author has collected thirty-four of his lectures to postgraduates on a large variety of subjects, each being discussed from the point of view of pathologic anatomy in its bearing on clinical medicine. Among the diseases discussed are anemia, leukemia, endocarditis, arteriosclerosis, aneurysm, cerebral hemorrhage, pulmonary embolism, septicemia and pyemia, pneumonia, diphtheria, scarlet fever, typhoid, appendicitis, tuberculosis, syphilis, paralysis, brain tumor, carcinoma, liver lesions, gastric and intestinal ulcer, Bright's disease and diabetes. Each topic is elucidated by many beautiful illustrations, both in color and in black and white. The style is a most enjoyable one — that of a well-informed and experienced lecturer and close observer. One or more post-mortem examinations forms the basis of each lecture, and the author endeavors to piece together the clinical history of each case by studying the pathologic findings and the method and cause of their production, and then details the clinical symptoms which existed or should have existed in the case. The opinions of others are quoted frequently, and arguments pro and con are quoted, thus giving the reader practically a complete word-picture of every subject discussed. One cannot do otherwise than commend this book, at the same time expressing the wish that there were many more like it.

Medicolegal

Liability for Malpractice in Leaving Tampon in Nose—Patient Not Bound to Return for Further Treatment—Liability of Proven Specialists

(Williams vs. Wurdemann and another (Wash.), 128 Pac. R. 639)

The Supreme Court of Washington affirms a judgment for malpractice. The court says that the defendants were physicians and surgeons specializing in the treatment of diseases of the eye, ear, nose and throat. The plaintiff suffered from a ringing sensation and partial deafness in his left ear and employed them to treat him for his malady. He consulted with one of the defendants particularly, and the latter in the course of the treatment performed a surgical operation on his nose, removing a bony or cartilaginous growth or "spur" therefrom. The wound made by the operation bled so profusely that it was found necessary, in order to stop it, to remove the plaintiff to a hospital and pack that part of his nose surrounding the wound with absorbent cotton. The physician first undertook to pack the nose with cotton tampons pushed in with instruments, but, finding that he could not stop the hemorrhage in that way, ran a string through the nasal channel into the mouth, and by fastening cotton tampons to the string succeeded in drawing them into the nose tight enough to accomplish his purpose. After the lapse of several hours the string on which the tampons were fastened was removed. The plaintiff was then given a lotion for local application and told to return for further treatment. No time seems to have been fixed for his return, and he did not call until some six days later, when he found that the physician who had treated him had left for a visit to the Eastern states to be gone for an indefinite time, and the plaintiff was waited on by the other defendant, to whom he described his condition and who advised him to go home and remain quiet for a time. The plaintiff, however, did not improve as was expected. On the contrary, his nose soon began to discharge fetid matter, and some days later he consulted another physician, who, on examining the nose, found a cotton tampon on one side and an adhesion on the other. That physician treated the plaintiff by removing the tampon, dividing the adhesion and washing out the nose. Recovery speedily followed.

It was the plaintiff's claim that the tampon found in his nose by the last-mentioned physician was a part of the packing put in originally by the first-mentioned one to stop the bleeding following the surgical operation and was by an oversight on his part not removed at the time of the removal of the tampons attached to the string; that this was not discovered by the other defendant whom he consulted some days after the operation, and was the cause of the disorders following that operation. The plaintiff's evidence, the court thinks, tended reasonably to support this conclusion, and, this being so, the court thinks it was for the jury and not the court to say whether the defendants were guilty of such negligence as constituted malpractice.

It was further argued, however, in this connection, that the plaintiff was obligated to return to the defendants for further treatment when he discovered that he was not getting along as well as he should and that his failure so to do was such negligence on his part as would prohibit a recovery against the defendants, but such is not the rule. It is true, undoubtedly, that if a patient employs a physician to treat him for a malady, and receives careful and skilful treatment at his office, but fails to return to the office for further treatment before he is discharged by the physician, and in consequence suffers an injury, he is not entitled to recover against the physician for such injury, and it is also true that a physician's liability ceases the moment his patient dismisses or discharges him, if his treatment of the case has been proper up to that time. But these principles have no application when the physician's treatment of the case has been improper. When being improperly treated the patient is at liberty to quit at any time, and he may hold the physician liable for the injuries suffered by him because of the improper treatment, notwithstanding it is highly probable that the physician, had the patient continued his treatment, would sooner or later have discovered that his treatment was improper and would so have modified it as to effect a cure.

It was objected to certain instructions given by the court on its own motion that it was assumed therein that the defendants were treating the plaintiff as specialists, whereas this action was brought against them as general practitioners and there was no issue as to the character in which they were sued. While it was true that the plaintiff did not allege in his complaint that the defendants undertook as specialists to treat him for the particular malady with which he was suffering, yet he was permitted to testify without objection to facts tending to show that the defendants held themselves out as specialists in the treatment of the disease with which he was afflicted; and the defendants themselves testified, in answer to questions put to them by their own counsel, that they were practicing as specialists in the treatment of diseases of the eye, ear, nose and throat. Under the practice in this state it is not error for the court to instruct the jury according to the case made by the undisputed evidence, notwithstanding such evidence may go beyond the issues made by the pleadings. There was therefore no error in assuming that the defendants undertook to treat the plaintiffs as specialists.

Liability for Malpractice in Causing Dislocation of Arm by Treatment—Proper Subject for Expert Testimony

(Taylor vs. Kidd (Wash.), 129 Pac. R. 406)

The Supreme Court of Washington affirms a judgment for damages for malpractice on condition that it be reduced from $5,500 to $3,500. The court says that the plaintiff, on March 6, 1909, while working on the roof of a house, fell therefrom to the ground, a distance of about 25 feet, and was severely injured. He employed the defendant, a physician and surgeon, to attend him. The defendant found him suffering with two broken ribs, a severe strain on the left shoulder, and various contusions on his body. He immobilized the shoulder and ribs and accorded the contusions the usual treatment. By the latter part of June the broken ribs had adhered, the contusions had healed and some use had been acquired of the injured shoulder. The shoulder, however, was not thought to be making satisfactory progress. The arm had very little motion, attempts to manipulate it caused pain, and it had also become somewhat atrophied. The defendant diagnosed the trouble with the arm as an adhesion of the fibrous tissue surrounding the glenoid cavity of the scapula, which he endeavored to reduce by massage and manipulation, but without success. In the early part of July he advised the plaintiff that a more rigorous manipulation of his arm than could be had without the use of an anesthetic was necessary in order to break up the adhesions, and appointed a time for the patient to meet him at his office and receive such treatment. The plaintiff attended at the office at the time appointed, and received one such treatment, which gave him some pain and caused considerable swelling in the arm and shoulder. On July 17, when the pain and swelling from the first treatment had somewhat subsided, the plaintiff went to the office a second time and his arm was subjected to a further and more rigorous manipulation by the defendant and his assistant. This last operation left the arm in an inflamed condition and much swelling and pain resulted, causing the patient to take to his bed, where he was confined for about ten days. Between that date and August 15 the defendant visited him almost daily and such times as his arm would admit of it subjected it to movement and manipulation. On the last-named date the defendant discontinued the manipulation, prescribed treatment for reducing the swelling and inflammation, and told the patient to come to his office as soon as the swelling should be reduced, when he would examine his shoulder with a Roentgen ray. The plaintiff, however, did not call again at the defendant's office, but on September 6 consulted with a Dr. Bates, who subjected him to a Roentgen ray examination. The plate disclosed a dislocation of the shoulder joint, the head of the humerus projecting downward and inward. To correct the difficulty Dr. Bates advised a surgical operation on the shoulder, which he afterward performed with the assistance of another physician. On cutting into the shoulder he found the head of the humerus in a friable and porous condition, so much so that it was deemed necessary to cut away the end of the humerus for about 2½ inches. After removing this portion of the humerus, the end remaining was set back into the shoulder cavity and the wound inclosed and dressed. At the time of the trial the wound had entirely healed, the arm, while much shorter than it was originally, had recovered much of its lost motion and usefulness, having, as was stated, perhaps 75 per cent. of its original power and scope of motion. The plaintiff thereafter instituted this action for malpractice. In his complaint he alleged the fact of his injury, the employment of the defendant to treat the same, and the manner of the defendant's treatment thereof, alleging as negligence that the defendant dislocated his arm on July 17, 1909, while attempting to break up the adhesions arising from the disuse of the arm following the original injury. Issue was taken on the complaint and a trial had which resulted in a verdict against the defendant in the sum of $5,500. The court thinks that the size of the verdict would indicate that the jury felt inclined to visit the entire loss suffered by the plaintiff on the defendant, whereas he was responsible only for the injury and suffering caused by his own acts, not those caused by the original injury, with which he had nothing to do.

The defendant contended that there was error in the trial judge's refusal to sustain his several challenges to the sufficiency of the evidence, arguing that the evidence failed to show that he did not treat the injury of the plaintiff with that ordinary diligence and skill which physicians and surgeons, practicing in the same and similar communities, ordinarily exercise in like cases. But the court thinks there was on this question sufficient evidence to make a case for the jury. Aside from the general outline of the evidence heretofore given, there was the positive evidence of a physician who examined the arm shortly prior to July 17, 1909, that there was then no evidence of dislocation, and it will be remembered that this was also the defendant's original diagnosis. There was therefore evidence from which the jury could well have found that the defendant dislocated the plaintiff's arm in his endeavor to remedy its anklyosed condition following the original injury; and the fact of such dislocation, and the further fact that he did not discover the dislocation at the times he subsequently manipulated the arm, was clearly evidence that he did not exercise the diligence and skill required of the ordinary physician and surgeon. For such injury as the plaintiff suffered because of such lack of diligence and skill he was, of course, entitled to recover from the defendant.

The plaintiff was permitted, over the objection of the defendant, to propound to his expert witnesses certain questions containing a summary of the facts the evidence on his part tended to establish concerning the treatment accorded the plaintiff by the defendant, and an inquiry whether the treatment thus accorded was such treatment as an ordinarily skilful physician, practicing in the community in which the defendant practiced, would bring to the care of such an injury. This was assigned as error, because, it was argued, it allowed the witness to determine the very question the jury was impaneled to determine. But the court thinks the question not objectionable on that ground. The question whether the treatment accorded the plaintiff's injury by the defendant came up to the standard of ordinary care and skill was not a question within the knowledge of persons of ordinary learning and experience, and hence a jury selected from such persons could not know from the mere description of the treatment whether or not it was reasonably careful and skilful. It was therefore proper to call on persons, learned in the particular science and familiar with the proper practice in like cases, to state whether in their opinion the treatment met the prescribed standard, and this, even though the question whether or not it did meet the required standard, was the ultimate question for the jury to determine. If it be competent for an expert medical witness to state what treatment a reasonably skilful physician would have adopted in a given case, or to give his opinion whether his examination of a person's condition was superficial or thorough, clearly he may give it as his opinion whether a given treatment was or was not ordinarily careful and skilful.

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
American Association of Railway Surgeons, Chicago, Oct. 15-17.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Delaware State Medical Society, Dover, Oct. 13-14.
Mississippi Valley Medical Association, New Orleans, Oct. 23-25.
Nevada State Medical Association, Reno, Oct. 14-16.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Virginia Medical Society, Lynchburg, Oct. 21-24.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Third Annual Session, Sept. 22-26, 1913

The President, Dr. Lewis H. Taylor, Wilkes-Barre, in the Chair

Officers Elected

Officers elected for the ensuing year are: president, Dr. Edward B. Heckel, Pittsburgh; vice-presidents, Dr. Henry D. Jump, Philadelphia; Dr. James Burns Anderson, Waynesboro; Dr. Jefferson H. Wilson, Beaver; Dr. U. B. Murray, Washington; secretary, Dr. Cyrus Lee Stevens, Athens; assistant secretary, Dr. William H. Cameron, Pittsburgh; treasurer, Dr. George W. Wagoner, Johnstown.

Place of next meeting, Pittsburgh, Pa.

Medical Legislation

Dr. Lewis H. Taylor, Wilkes-Barre: "To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws," is a clause from Article II of our ordinances to which I earnestly call your attention. Among important bills in which the state society is directly interested are the midwifery bill, and the amendments to the medical act of 1911 requiring additional qualifications before entering on the study of medicine and a year's service in a hospital after graduation. After Jan. 1, 1914, the State Bureau of Medical Education and Licensure will admit no applicants from within the state nor without, to its examinations until such applicant has completed a year of service in an approved hospital, nor will any one be admitted to begin to practice in the state through reciprocity who after that date has not fulfilled this requirement. The marriage law now in effect in Pennsylvania, unfortunately, does not make a health certificate from a physician necessary, although it provides that the applicant shall take oath that he or she is not afflicted with transmissible disease.

After November 1 the law pertaining to the employment of women will go into effect. The matter of hospital appropriations should be one of vital importance to every physician of the state. That the final determination of the amount to be given to individual hospitals should be left to the judgment of one man is wrong, even if that man does hold the high office of governor of the greatest state in the Union. Appropriations should be made on the basis of work done and the needs of the community rather than on the basis of political influence on legislators or on the judgment of the governor. Further, the problem of a national board of health is one on which we need the influence of a united medical profession.

Modern Ideals in the Care of the Insane

Dr. William K. Walker, Pittsburgh: Insane people are sick people and their adequate care demands scientific methods at the hands of doctors and nurses. The "physiological conception" of insanity emphasizes the importance of the "treatment of the mind" by scientific methods. The housing and care of the insane in the state and county asylums of Pennsylvania are barbarous. In one institution only one out of seven male patients possesses more than one shirt. Seven per cent. only are sleeping between sheets; as many as three patients are sleeping in one room; patients are crowded in the corridors at night, sleeping on mattresses on the floor so close that they almost touch each other. Therefore the cure of mental maladies is difficult, if not impossible. Brutality of keepers is often excused and unpunished. In view of the conditions and the archaic oversight of the mentally afflicted, insanity is rapidly increasing. The first step in reform must be to remove such institutions beyond political control.

DISCUSSION

Dr. Edward E. Mayer, Pittsburgh: It is too often forgotten that with early and proper treatment many of those who become hopelessly insane will be brought back to sanity. We should work for better facilities for this class of sick. Especially should we work for psychopathic hospitals for the acute and incipient case, for state supervision over all the indigent insane and for better psychologic and psychiatric training of the future physician. In Germany every university has a psychiatric clinic.

Dr. William J. Heckson, Vineland: We know that 75 per cent. of mental diseases are hereditary. We must, therefore, devise some means of stopping the propagation of mental defects.

Relation of Venereal Disease to the Public Health

Dr. Edward Martin, Philadelphia: The crusade against social evil should be an organized and concerted effort. It is interesting to read the sanitary records of the cases of chickenpox, measles, mumps and whooping-cough. When, however, either the plutocrat or the pauper reeks with gonorrhea or syphilis in its most virulently contagious form the health authorities are powerless, since these diseases have practically no official existence. They should be made reportable diseases. When the community wants such action it will be taken. An assurance of being reported and, perchance, of being distrained of liberty, would constitute a potent factor against exposure. On the education of the young in sexual matters much hope has been built. The consequences of venereal disease should be taught as a part of general hygiene in the school curriculum without undue emphasis on the sexual side of the subject. The most potent influences against sexual immorality are those of the home, the school and a busy, wholesome life.

DISCUSSION

Dr. Charles J. Hatfield, Philadelphia: I trust that some measure may be taken whereby the force of this society can be exerted in favor of the registration of these diseases. Further I hope that medical opinion will insist on having hospital facilities for the treatment of the disease.

Dr. Lawrence Litchfield, Pittsburgh: Public opinion must be educated and this obligation rests on the medical profession. The medium of communication is the newspaper.

The Problems of the Unfit

Dr. Edward E. Mayer, Pittsburgh: The biologic and sociologic problems involved in medical care of the mentally defective are not sufficiently appreciated by the rank and file of medical practitioners. Not social workers and psychologists, but physicians, must deal with psychogenetic problems of psychoneurotics. Insistence on thorough psychiatric instruction in medical schools, and on efficient psychopathic wards or clinics, will enable the future physician to give wise counsel concerning the life of the psychopathic unfit and the mating of the impure and help to a greater extent in the reduction of vice. I would not decry the work of the practical psychologist, but the feeble-minded should be studied by the physician first of all. Our interest in the problems of the unfit should secure for Pennsylvania more adequate work in our state asylums, state supervision of all our insane, a better trained and larger medical staff in such institutions. Psychopathic wards in some hospital in every city are immediate necessities. I would ask the appointment of a committee for promotion of efficient laws on insanity, to be given, if possible, funds and power to act for the society. Such a committee need not be in conflict with the committee on public policy and legislation and could cope with some of the evils creeping into the public school inspection, the psychologic clinics, the juvenile courts and the moral commissions.

DISCUSSION

DR. THEODORE DILLER: There must be education, first of all, as Dr. Litchfield says, of ourselves, and then of the public. We are doing something regarding the elimination of the unfit from employment by a railroad company. It is required that employees abstain from alcohol and a plan of scrutiny is being carried out to determine whether they have any mental or physical disease rendering them unfit.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, Held at West Baden, Sept. 25-26, 1913

The President, DR. A. C. KIMBERLIN, Indianapolis, in the Chair

SYMPOSIUM ON CHRONIC BRIGHT'S DISEASE

Symptomatology and Diagnosis

DR. G. W. MCCASKEY, Fort Wayne: Bright's disease should be conceived of not simply as a lesion of the kidneys, but as a widespread pathologic process involving many tissues and organs. It is always of hematogenous origin, due to toxins circulating in the blood, and the kidneys suffer most because it is their function to remove these toxins, the irritant effect of which is, therefore, accentuated on these organs. The cardiovascular apparatus comes next in line, and owing perhaps to greater vulnerability, often suffers even more than the kidneys. The symptoms are the combined results of chronic intoxication with relatively slight kidney involvement, aggravated later by limitation of kidney function which forms a vicious circle, intensifying the toxemia which produces the kidney lesion. In making a diagnosis, the clinical history and physical examination are factors of first importance. The presence of albumin and casts does not prove Bright's disease, nor does their absence exclude it. A routine examination of the urine should be supplemented whenever necessary by functional kidney tests and analysis of the blood. The phenolsulphonephthalein test is the best routine method for determining kidney function in general, but is not parallel with the urea excretion, which, in common with the salt and water output, should be separately determined as a basis for classification of Bright's disease from the standpoint of renal pathology.

Vascular Changes Secondary to Bright's Disease

DR. C. F. NEU, Indianapolis: In regard to the treatment of the high blood-pressure and cardiovascular changes accompanying Bright's disease, the general tendency is to give such remedies as directly tend to bring about a reduction of blood-pressure, such as cardiac depressants and vasodilators. There is the danger, particularly in those cases of arteriosclerosis in association with chronic interstitial nephritis, that with the lowered blood-pressure there not infrequently takes place a fall in the urinary output, sometimes amounting to complete suppression. This is almost sure to follow the lack of blood supply to the kidneys, for the high blood-pressure is the result of nature's endeavor to insure an adequate circulation through the renal vessels. Fisher states that there is no justification in giving nitrites, etc., in chronic interstitial nephritis, unless we can show that while reducing the general blood-pressure we are not at the same time reducing the blood supply to the kidneys to a dangerous point.

Eye Lesions

DR. ALBERT BULSON, JR., Fort Wayne: Bright's disease often shows characteristic eye lesions. In the optic nerve the lesion manifests itself in reddening and partial obliteration of the disk. The retina and its immediate neighborhood are usually opaque and striated. In various localities in the retina, usually more numerous in the macular region, may be seen hemorrhages and white patches due to degeneration and inflammation. In the macular region these white patches are generally arranged in the form of a stellated figure. Anatomically these patches and areas of inflammation consist of cells filled with fat granules, dense masses of varicose nerve fibers, accumulations of fibrinous exudate, amorphous débris and masses of round cells consisting probably for the most part of white blood-cells. In most cases there are distinct signs of arteriosclerosis which may be seen by ophthalmoscopic examination. These signs consist of tortuosity of the smaller blood-vessels, white lines or streaks bordering the arteries, and indentation of the veins wherever the arteries cross. In the very early stages of a Bright's disease the fundus lesions are not prominent, but close inspection will often disclose a milky discoloration in the macular region due to inflammatory or degenerative changes.

Influence of Kidney Lesions in Determining the Selection of Anesthetics and Surgical Risks

DR. MILES F. PORTER, Fort Wayne: I hesitate to use large quantities of urea and quinin to produce local anesthesia in a patient with chronic Bright's disease. The sum-total of the effect on the kidneys of an operation done under general anesthesia in the presence of Bright's disease may be beneficial. This is especially true of operations for the relief of obstruction and infection of the bile tracts and for the relief of light conditions in the urinary tract. In acute surgical conditions that immediately threaten life in patients with chronic Bright's disease, the existence of the latter would have no influence in deciding the question as to operation, but should govern the choice of the anesthetic and be duly considered in concluding as to the extent of the operation.

Given a case of acute perforation of the stomach in a patient with chronic Bright's disease, there would be no hesitation as to the necessity for immediate closure of the perforation, but one would perhaps hesitate to excise the ulcer area and do a gastroenterostomy. Again, there should be no hesitancy in opening an acute appendiceal abscess in a chronic nephritis, but the kidney lesion would probably lead one to contend with simply opening and draining the abscess under local anesthesia.

I would like to urge the importance of inquiring into the kidney function in all cases prior to giving a general anesthetic or performing a surgical operation, and to emphasize the importance of preliminary treatment in all cases showing imperfect kidney function, except in those cases in which the demand for surgery is immediate.

DISCUSSION ON BRIGHT'S DISEASE

DR. FRANK B. WYNN, Indianapolis: The profession has been spoiled in the matter of diagnosticating chronic nephritis. It is usually discovered by accident in an examination for life insurance, or only after the patient has the symptom-complex well developed. The quick and easy route to diagnosis, which the urine seems to afford, has led us to overlook and undervalue the early clinical phenomena of the disease. Undue weight has been given by the practitioner to the urine as affording a sure index both as to the type of kidney lesion and the prognosis. The symptomatology, as described by the essayist, showing toxic effects on the part of the nervous system, the gastro-intestinal apparatus, urinary function and eye, give early warnings, that we are prone to call by other names than nephritis. Much has been said of the importance of recognizing pretuberculous states; may it not be just as incumbent on us to be alert for prenephritic states? We should be more frequently on the lookout for the first symptoms of Bright's disease, or for those clinical findings which we know often lead to the development of the disease, such as high nervous tension with increased blood-pressure. In my own experience I have often found that cases which at first I was prone to consider as neurasthenic proved on prolonged study to be incipient nephritis. If we were more cautious in the early recognition of these cases, our views as to prognosis would not be so bad.

Of the early symptoms which should excite our suspicion and careful investigation, none is commoner than a neurasthenic train of manifestations. The individual complains of tiring easily; has lost his former snap and interest in affairs; suffers from indigestion. Persistent anemia should always be carefully investigated with the thought of a possible beginning Bright's disease. A prominent and tortuous temporal artery is very suggestive. Other less frequent early symptoms are: "dead fingers" or feeling as if benumbed by cold; cryesthesia or great sensitiveness to cold; cramps in the calves of the legs and electric light shocks; vertigo; anorexia; pollakiuria or frequent micturition, followed later by polyuria. One or more of these symptoms should always lead us to make a careful study of the urine and a critical physical examination and clinical study of the case.

Dr. H. H. Martin, Laporte: For some time, I have watched with interest the condition of the kidneys in patients suffering with intestinal stasis. I am firmly convinced that many of our so-called cases of Bright's disease are secondary to intestinal stasis, and that early recognition of this fact will oftentimes enable us to improve our prognosis. The urinary picture of a kidney being overwhelmed by intestinal poisons is very constant; in fact, so constant and so similar that it is quite possible in many cases to make a diagnosis of the primary condition from the urinary findings alone.

Dr. F. C. Heath, Indianapolis: I want to emphasize the prognostic significance of the eye lesions in nephritis. Dr. Bull, of New York, a great many years ago, followed up a large number of cases and found that nearly all these patients died within three years of albuminuric retinitis, many of them inside of a year, and quite a number inside of six months. Recently, I have been able to get complete histories of ten cases, many of whom died within two years after the discovery of the retinitis, some of them within six months. One patient had pronounced albuminuric retinitis, but complained of nothing, except a slight smothering sensation in the chest, and yet his urine was heavily loaded with albumin. The doctor in this case made a serious mistake in using too active medication, namely, irritating diuretics which shortened the man's life. He died within six months after the discovery of albuminuric retinitis.

Dr. Joseph Rilus Eastman, Indianapolis: After some experience in the use of the phenolsulphonephthalein test, I have come to the conclusion that it misleads as often as it leads to a better understanding of the kidney lesion. Nobody knows whether the standards of Geraghty and Rowntree are precise or not; they are entirely arbitrary. The urea test is more precise than any color test. When we deal with urea we are dealing with a normal, organic, metabolic product of the kidney. When we deal with phenolsulphonephthalein or indigocarmin or methylene blue, etc., we are dealing with substances which are entirely foreign to the kidney. The kidney reacts in a certain way to the coloring material; because the kidney eliminates, for instance, the phenolsulphonephthalein with certain rapidity, it is no evidence that the kidney can eliminate the abnormal metabolic products with the same rapidity.

Dr. George D. Kahlo, Virginia: We not only have the urinary findings, which we formerly relied on too much, and from which many errors in judgment as to diagnosis and prognosis inevitably occur, but we have the evidence as shown in the vascular system, in the cardiac changes, in the retinal changes and nervous system. The question is, what causes this change, and what are we going to do for the patient after the condition has been recognized as a beginning nephritis? The most important etiologic factor in nephritis, according to Dr. Martin, is intestinal stasis. How often do we find intestinal conditions, whether they be associated with enteroptosis, or whether they be due to an atonic condition of the intestinal wall? We have in practically all these cases a toxic condition—an auto-intoxication, if you wish to call it, but there is a toxemia. There is a beginning nephritis, and the earlier we recognize the toxemia, the better, then we come to the point of how far the kidney is performing its function. We can tell that the structure of the kidney and of the vascular system is endangered by the presence in the system of toxic substances which can be avoided by a proper mode of diet, and what is of primary importance in this connection is the regulation of the diet. It is not merely the restriction or exclusion of proteins from the dietary, but a question of the amount of food that people should eat and the conditions under which the food is prepared, and whether the patient has a normal functionating gastro-intestinal tract to eliminate waste product. It is the accumulation of this waste in these toxins that is the source of irritation to the vascular system, and in connection with which you will find evidences in the kidney pathology, as shown in the microscopic findings of the urine.

Dr. Leonard F. Schmauss, Alexandria: I am surprised that no mention has been made of decapsulation of the kidney in connection with the treatment of chronic Bright's disease. I operated on a patient ten years ago for parenchymatous nephritis. The patient had been confined to bed for six or eight months with general anasarca, large white kidneys. I operated on her. She began to improve after operation and continued to do so. The albumin and casts disappeared. This woman is alive and well to-day.

Dr. Theodore Potter, Indianapolis: In our discussion of so-called functional tests of the kidney, we seem to have overlooked one of the simplest, one of the most natural methods, and one that is universally valuable, and that is putting the kidney under a little strain by exercise, and not by testing it with various sorts of things. If you have reason to suspect the early stage of this disease, examine the patient. If you examine the first urine which that patient passes in the morning, and the next few hours, very frequently you will find it clear from the ordinary evidences of nephritis, but during the middle and active part of the day, they will show up more or less, or if you have the man walk one or two miles before he passes urine, under that little strain, if you examine the urine, you will find kidney abnormality.

Manner of Growth and Surgical Treatment of Cancer of the Breast

Dr. W. D. Gatch, Indianapolis: Unfortunately most women with cancer of the breast come to the surgeon too late for a permanent cure. What is the best treatment for these advanced cases? Should cases with extensive involvement of the axillary lymph-nodes, or with ulceration of the growth and skin metastases be operated on? I believe that no operation with the knife should be done on such patients, unless there is good hope that the growth can be so nearly completely excised that local recurrence will not take place. Mere excision of the primary tumor with perhaps a partial excision of the axillary lymph-nodes simply excites the growth of the cancer, shortens the patient's life, and makes her condition more miserable. If such excision with the knife is not possible, and a painful ulcerated tumor requires removal, the same can be excised with the cautery or with the knife, and the wound immediately cauterized. This procedure does not accelerate the growth. The wound left after it can be given vigorous Roentgen-ray treatment. By these measures it is frequently possible to limit the local growth so that the patient is kept free of pain till she is relieved by death caused by internal metastases.

Any operation which is not followed by an external recurrence of the growth is successful and well worth while.

With breast cancer, as with every other form of malignant growth, the success of operation depends largely on how early in the course of the disease operation is done.

DISCUSSION

Dr. Paul Martin, Indianapolis: It has been my personal experience and observation that when a woman comes with carcinoma, she has had it for ten or twelve months or longer before she consults a physician, and then as the history shows, the physician has kept her under observation for an equal length of time, so that it may be eighteen or twenty months before she goes to the surgeon or before she is brought to him. This lapse of time is the only period the patient has for relief. These patients come too late for operation to do much, if any permanent, good.

DR. JOSEPH RILUS EASTMAN, Indianapolis: There is only one man prominent in the United States, Dr. John B. Murphy, who still advocates that the pectoral muscles should be left in, but I am sure that Dr. Murphy has arrived at that conclusion in very much the same manner that Lorenz arrived at his position relating to the bloodless treatment of congenital hip dislocation. He had an intractable eczema on his hands; he practiced surgery before the day of gloves, could not sterilize his hands, and therefore had to do the operation in a bloodless way. Dr. Murphy advises cleaning out the axilla, using the pectoral muscle as a pad, so that the contraction scar will not lead to edema of the arm, and he is so accustomed to doing this that he continues to do it in the face of anatomic reasons for the removal of the pectoral muscle. If cancer is diagnosticated early when the diagnosis is difficult, the cure is not far to seek. If we wait until the diagnosis is so easy that any bricklayer can make it, then a cure of the condition will be extremely difficult or impossible.

DR. DENNY, Indianapolis: The removal of the breast widely with the pectoral muscles and fascia, cleaning out the axillary lymph-nodes, offers the only chance of saving the lives of these patients until we know more about the cause of the disease. I cannot see any hope of diagnosticating precancerous conditions in the tissues of the body and operating on them. We certainly cannot make such a diagnosis in the breast. The cancerous nodules become deep-seated and we have no evidence on the surface of injury. We cannot remove all moles and warts, but one thing we can do, and should not be afraid of making a mistake, is to remove a breast occasionally for a benign condition which later may become malignant. Such a risk is preferable to waiting for the possibility of malignancy to occur. These women should be educated to consult physicians earlier.

DR. E. D. CLARK, Indianapolis: The best way to prevent cancer of the breast is to remove tumors of the breast when they are found regardless of the question of whether they are benign or malignant. They are abnormal, and they ought to be taken out. This can be done without much mutilation of the breast if we are sure it is cancer. Practically all operations devised for cancer are failures—at least, in my hands. It is only in those cases that I get early and operate on them, regardless of whether the tumor is benign or malignant, that I have any hope of curing.

DR. MILES F. PORTER, Fort Wayne: We want to forget that cancer is a disease of middle life. It is oftentimes a disease of early life. I have seen several cases of cancer of the breast and many cases of cancer of the uterus in women before 30 years of age.

About the closure of the wound, I think we should be reasonable in all things. If, after a radical operation, you can say to the patient, you can get out of the hospital with a closed wound in a week, you will have an opportunity to do a great many more radical operations than you would have if you cannot make that promise. You will succeed in operating in more cases early than in operating on patients who wait three or four months for a wound to close, thereby inducing by irritation of the skin another potential cancer in the case. No man with experience would hesitate to make a sufficiently wide wound to remove the cancerous disease. On the other hand, we should not forget it is the part of wisdom to close the wound if we can, and in the vast majority of cases we can close it without danger of local return.

DR. DAVID ROSS, Indianapolis: I agree with Dr. Porter that there are many cases that come to us in which the radical operation, so-called, is not needed, and yet in that statement I realize it is also impossible to tell. There is a great deal of argument which can be advanced in favor of the position taken by Dr. Gatch in his paper, namely, with early removal you have a chance to save the patient's life, and thorough radical work should be done. I have in quite a number of cases, in which patients would not submit to the radical operation, removed the breast and subsequently treated it with the cautery. I would not undertake the treatment of any tumor that is operable with the Roentgen ray, but I do believe that after a thorough dissection has been made, not only in the incipient cases, but also in those that are inoperable, so-called, by removing the immediate cancerous tissue and cauterizing as may be necessary, then afterward treating the case with the Roentgen ray, we render our patients not only more comfortable but prolong their lives, and as often happens in the aged, we may prevent the recurrence of some other condition which takes the patient away.

DR. JAMES H. FORD, Indianapolis: Early diagnosis is a sine qua non. Every woman should know and be able to teach her children that their breasts should be examined carefully by a competent man at periodical intervals. Dr. Porter says cancer is not always a disease of middle life. My earliest case was in a girl 28 years of age, who had carcinoma of the breast.

DR. THEODORE POTTER, Indianapolis: A number of years ago Dr. W. W. Keen of Philadelphia called our attention to the frequency with which certain lesions became malignant, such as warts, moles, etc. Bloodgood said practically that every cancer of the skin was preceded by some recognizable lesion there. If that is so, it is a very important thing, and whether such a thing is possible or not, every practitioner should know that there are many instances in which these comparatively trivial lesions of the face, the neck and hands, such as moles and warts, do subsequently develop into malignancy.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

September, I, No. 3, pp. 193-262.

1 Free-Living and Parasitic Amebae and Their Relation to Dysentery. E. R. Whitmore, New York.
2 Disease Carriers Among Schoolchildren. E. O. Jordan, Chicago.
3 Anopheles and Malaria. F. Knab, Washington, D. C.
4 Serums and Vaccines in Prevention and Treatment of Undulant Fever. A. P. Hitchens, Glenolden, Pa.
5 Cultivation of Malarial Plasmodia (Plasmodium Falciparum) in Vitro in Blood of Diabetic without Addition of Dextrose. C. C. Bass and F. M. Johns, New Orleans.

Archives of Internal Medicine, Chicago

September 15, XII, No. 3, pp. 245-355

6 *Relation between Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis. C. Frothingham, R. Fitz, O. Folin and W. Denis, Boston.
7 *Case of Vegetative Endocarditis Caused by Hitherto Undescribed Spirillum. A. R. Lamb, New York, and F. W. Paton, Bradford, Pa.
8 *Case of Spirillum Infection. W. B. Soper, New York.
9 *Studies on Sulphur Metabolism. 1. Urinary Sulphur Partition in Various Diseases. N. Stadtmüller, New York, and J. Rosenbloom, Pittsburgh.
10 *Reaction of Salomon and Saxl as Diagnostic Test for Carcinoma. I. Greenwald, New York.
11 *Protein Metabolism of Normal Pregnancy. J. R. Murlin and H. C. Bailey, New York.
12 *Renal Complications of Hematin Intoxication and Their Relation to Malaria. W. H. Brown, Chapel Hill, N. C.
13 *Use of Pituitary Extract in Obstetrics. F. C. Harrison, Toronto.
14 Treatment of Syphilitic Affections of Central Nervous System with Special Reference to Use of Intraspinous Injections. H. F. Swift and A. W. M. Ellis, New York.
15 *Value of Edestin and Peptone in Diagnosis of Cancer of Stomach. J. C. Friedman and W. W. Hamburger, Chicago.

6. **Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis.**—The authors found that in acute uranium nephritis in rabbits the excretion of phenolsulphonephthalein in the urine and the

amount of non-protein nitrogen and urea in the blood vary from the normal during the course of the nephritis and return to normal as the nephritis heals. The degree of variation from the normal agrees on the whole with the amount of destruction demonstrated histologically in the kidney. The phenolsulphonephthalein excretion in the urine drops rapidly to its lowest point and returns rapidly to normal with recovery of the kidney. Non-protein nitrogen and urea accumulate gradually in the blood and return to normal gradually, as the kidney recovers. In general, the authors' tests parallel each other as indicators of renal function, but have this essential difference: the amount of phenolsulphonephthalein excretion shows the renal function at the moment; the amount of non-protein nitrogen and urea in the blood is rather a measure of an accumulating difference between the amounts of waste nitrogen produced in the metabolism and the amounts eliminated by the kidneys. The time element, the duration of the condition, is therefore an important factor in this test.

7. **Vegetative Endocarditis.**—The organism described by Lamb and Paton seems to be fairly well established as the cause of the disease. The blood-culture results were very satisfactory. On two separate occasions, with about ten days intervening, three broth flasks showed a pure growth of the organism. A third culture, the first one taken, was discarded as sterile on the fifth day. This was two days before the second culture showed a growth and one day before the last culture was positive. It is possible that had it been kept, it, too, would have been positive. At necropsy, the same organism was obtained from the blood, liver and cardiac vegetations, several times in pure culture, in the other instances in association with the usual autopsy organism, the colon bacillus. Smears of the vegetations showed the organism very definitely. No other variety of bacteria was seen in these smears. Sections of the vegetations also showed the organism very well and again no other bacteria could be identified. The animal inoculations were not so satisfactory. They were carried out on only a limited scale and gave only negative results. As mentioned above, these experiments could not be repeated owing to the loss of the organism. One of the striking things about the case was the fact that the blood-cultures did not become positive until after the time when they are usually discarded. The authors have been unable to find any reference to an organism similar to the one found in this case and have ventured to give it the name *Spirillum surati*, after the name of the locality in which the disease was presumably contracted. The biology and morphology of the organism is described in detail.

8. **Case of Spirillum Infection.**—This case was, in the beginning, considered as having its origin below the diaphragm as a process which had extended upward. It was also presumed to be due to some ordinary pyogenic organism. The assumption that the original infection was below the diaphragm was probably correct, but repeatedly sterile cultures and the absence of any organisms, save the spirilla, from the smears make the supposition of a pure spirullum infection strong. Unfortunately, the condition of the patient was such that it seemed inadvisable to take a blood-culture.

9. **Urinary Sulphur Partition in Various Diseases.**—The lowest average total sulphur excretion (0.88 gm. per day) was found by the authors in a series of thirteen cases of carcinoma. The same series showed also the lowest average neutral sulphur excretion (0.20 gm. per day). The proportion of the neutral sulphur to the total sulphur in this group is considerably higher than the normal proportion of the total sulphur excreted as neutral sulphur. However, the relation of the neutral sulphur to the total sulphur is still higher in the group of seventeen various diseases (not including diabetes or carcinoma). In this group we find that both the relative and absolute amounts of total sulphur and neutral sulphur to be higher than in cancer and diabetes. Eight out of nine cases of diabetes studied showed an increased excretion of neutral sulphur, both in amount and in relation to the total sulphur excreted. From their experience the authors think it is a precarious undertaking to diagnose a malignant tumor on the basis of the absolute or relative amount of the neutral sulphur excreted in the urine, or from the daily excretion of total sulphur.

10. **Reaction of Salomon and Saxl as Diagnostic Test for Carcinoma.**—No differences were found by Greenwald to exist between the urines of patients with carcinoma and other diseases and normal individuals, in the amount of barium sulphate, either absolute or relative to the total sulphur, precipitated by the procedure of Salomon and Saxl. It is therefore concluded that the test is of no value in the diagnosis of carcinoma.

11. **Protein Metabolism of Normal Pregnancy.**—In general, the authors believe that peculiarities in the composition of the urine of normal pregnancy as regards its nitrogenous constituents may be accounted for on purely physiologic grounds.

12. **Renal Complications of Hematin Intoxication.**—Brown found that mild grades of hematin intoxication produce degenerative lesions in the kidneys and the urine shows a trace of albumin and casts. Severe grades of hematin intoxication result in extensive dilatation, injury and occlusion of the renal vessels by hyalin thrombi or emboli, all of which are most pronounced in the glomerular vessels. Extensive degeneration and necrosis of tubular epithelium, hemorrhages and even anemic infarcts result from these vascular lesions. In such cases the urine presents the characteristics of an acute nephritis. In rare instances of severe hematin intoxication, hemoglobinuria may occur. During the period of recovery from acute hematin poisoning and in chronic poisoning, the kidneys show both degenerative and proliferative processes. The glomerular tufts shrink and the capsular space and tubules are more widely dilated. The tubular epithelium shows degeneration and active regeneration with abundant mitotic figures. There are foci of round-cell infiltration and of connective tissue increase. There is also a slight diffuse increase in connective tissue. The urine is increased in amount and contains albumin with hyaline and granular casts. The renal complications of hematin intoxication are believed to be due primarily to dilatation, injury and occlusion of renal vessels under the action of hematin.

13. **Pituitary Extract in Obstetrics.**—Harrison determined experimentally that pituitary is of great value in cases of weakness in uterine movements after the soft parts are well dilated. Failure in these cases is rare, probably less than 1 per cent. The later in labor, but before delivery, the more striking the effect. The danger to the child and mother is very slight. As an addition to some mechanical method, e. g., the Champetier de Ribes' bag, it is of great value in bringing on premature labor or abortion. In the former case it may be sufficient in itself, but there is some risk of tetanus of the cervix, or of the uterus, especially when repeated injections are required. For delivery of the placenta its use is accompanied by the danger of tetanus uteri and retention. In post-partum hemorrhage a considerable percentage of failures may be expected.

15. **Diagnosis of Cancer of Stomach.**—The authors summarize their findings as follows:

1. Edestin is a valuable aid in controlling the proteolytic cleavage of stomach contents.
2. The proteolytic cleavage of stomach contents is due in most instances to regurgitated trypsin, although leukocytes and bacteria probably play some rôle.
3. By the use of edestin with peptone it is possible to materially reduce the errors in non-cancerous and normal cases due to trypsin, leukocytes and bacteria.
4. The edestin-peptone method possesses distinct value in the diagnosis of cancer of the stomach and is of considerable service in the differential diagnosis between benign and malignant anacidity.
5. *High peptolysis* with low proteolysis speaks for carcinoma; high peptolysis with high proteolysis *against carcinoma*.
6. The edestin-peptone method, as in other laboratory tests, is of practical value only when taken in conjunction with the usual clinical and laboratory findings.

Colorado Medicine, Denver

September, X, No. 9, pp. 255-280

16 Aberrant Renal Vessel. W. M. Spitzer, Denver.
17 Purpura Fulminans. J. W. Amesse, Denver.
18 Close Relation of *Dentist to Physician.* W. O. Weber, Greeley.
19 Amnesia. E. Delehanty, Denver.

Georgia Medical Association Journal, Augusta

September, III, No. 5, pp. 145-180

20 Etiology of Insanity Based on Study of Admissions to Georgia State Sanitarium during 1912. R. C. Smith, Milledgeville.
21 Treatment of Chorea with Rheumatism Phylacogen. E. B. Block, Atlanta.
22 Criminal Insane. E. M. Green, Milledgeville.
23 Plea for Medical Inspection of Our Country Schools. L. C. Allen, Hoschton.
24 Stools of Children and Their Significance. B. B. Jones, Metter.
25 Some Reasons Why Doctors Are Not More and Better Recognized by Other Professions and the Laity. A. L. R. Avant, Savannah.

Journal of Infectious Diseases, Chicago

September, XIII, No. 2, pp. 171-349

26 *Variation in Type of Infectious Disease as Shown by History of Small-Pox in United States, 1895-1912. C. V. Chapin, Providence, R. I.
27 Equine Piroplasmosis in Panama. S. T. Darling, Ancon, C. Z.
28 *Virus of Rabies, Freed from Cells of Host and from Contaminating Organisms. D. W. Poor and E. Steinhardt New York.
29 *Organism of Rabies and Experiments in Its Artificial Cultivation. V. H. Moon, Chicago.
30 Relation of Nitrates to Putrescibility of Sewages. A. Lederer, Chicago.
31 Brilliant Green Broth as Specific Enrichment Medium for Paratyphoid-Enteritidis Group of Bacteria. J. C. Torrey, New York.
32 *Toxicity of Human Tonsils. G. F. Dick and W. H. Burmeister, Chicago.
33 Spirochete Associated with Infections of Accessory Sinuses. R. Tunnicliff, Chicago.
34 *Anaerobic Organism Associated with Acute Rhinitis. R. Tunnicliff, Chicago.
35 *Anaerobic Bacillus Isolated from Case of Chronic Bronchitis. R. Tunnicliff, Chicago.
36 *Cultivation of Virus of Vaccinia. E. Steinhardt, C. Israeli and R. A. Lambert, New York.
37 Complement Fixation Test (Gay's Modification of Besredka Method) in Differentiation of Acid-Fast Bacilli. W. H. Harris and J. A. Lanford, New Orleans.
38 *Treatment of Tetanus. C. T. McClintock and W. H. Hutchings, Detroit, Mich.
39 Typhoid Colon Intermediate Group of Bacilli, with Special Reference to Complement-Fixation Reactions. J. A. Kolmer, W. W. Williams and A. M. Raiziss, Philadelphia.

26. **Variation in Type of Infectious Disease.**—The evidence studied by Chapin points to the existence in North America during the last fifteen years of two quite distinct strains of small-pox, one the long-recognized type of the text-books, the other marked by decided mildness of symptoms. The latter, Chapin believes, is probably a mutation from the former. Both strains tend to breed true, and though it is possible that a few outbreaks of the severe type may have developed from the mild type there is no conclusive evidence that they have been numerous or extensive.

28. **Virus of Rabies, Freed from Cells of Host.**—From their microscopic examinations Poor and Steinhardt conclude that the virus of rabies as it exists in the submaxillary gland, though possibly visible, is probably of no distinctive form. By the use of various staining methods, by frequent examinations of many viruses with both light and dark fields, with high magnification, no distinctive formed elements were seen. In all cases small granules were readily found. Occasionally there were rings with a central point and cilia-like structures, but these were also found in the control extracts of normal submaxillary glands. Occasionally it seemed that there were more granules in the rabid than in the normal extracts, but no conclusions could be drawn. Experiments on the possibility of obtaining a specific agglutination of the virus of rabies as it occurs in the gland extract from an antirabic serum, obtained by the injection of rabid brain, were tried. By this method it was hoped to exclude tissue reactions. In some cases it seemed as if there were greater clumping of granules in the rabid extracts than in the control normal extracts. Further work is now being carried on along this line and with the opsonic technic, with the possibility of a specific phagocytic action locating the virus in the leukocytes.

29. **Rabies and Experiments in Artificial Cultivation.**—Dogs were inoculated by Moon with street rabies by the direct injection of emulsion of rabid brain into a nerve trunk. Various nerves were employed, but most satisfactory results were obtained by introducing a long needle into the orbital cavity below the eyeball and making the injection at the point where the optic nerve emerges through the optic foramen, the operation being made under ether anesthesia. The animal was then observed closely and at the first sign of unusual restlessness or excitability, usually after twelve to eighteen days, it was killed and the brain taken out under the most careful aseptic precautions. Sections about 3 millimeters in thickness were taken through Ammon's horn and adjacent tissue and incubated in sterile dog-serum in tubes with a layer of olive oil above the serum. The olive oil served the double purpose of preventing evaporation and producing partial anaerobic conditions.

Before placing the brain tissue in the tubes a small bit of gray matter was cut from each section and a smear made as a control for future comparison. At intervals of twenty-four hours tubes were opened and specimens made and compared with their respective controls. The chief difficulty lay in determining the stage at which the dog should be killed and the incubation *in vitro* begun. When this stage was chosen opportunely either no Negri bodies would be seen in the freshly stained preparation or the forms would be very minute, ranging from 1 to 3 microns in diameter. Marked increase in both number and size was evident in twenty-four hours in most cases and the development continued until the tissues became so degenerated from incubation that satisfactory staining was difficult. After forty-eight or seventy-two hours the larger bodies attained a diameter of from 6 to 9 microns, while definite increase in numbers was evident, and the smaller forms were present in abundance. The bodies showed the characteristic dark granules and staining properties, but greater irregularity of form was evident than the Negri bodies show under ordinary conditions.

Controls of normal brain tissue incubated under the same conditions showed no forms which would be mistaken for Negri bodies by an experienced observer. Equally satisfactory results were obtained when the sections were incubated in Ringer's solution instead of serum. Moon believes that these results lend additional support to the view that the Negri bodies are forms in the life cycle of a protozoan organism as against the view that they are the results of the reaction of the living nerve cells to the disease. He suggests that the increase in the size and the number of the bodies perhaps might result from a progressive chemical change in the brain substance, but belittles the notion that the bodies are the results of this experiment.

32. **Toxicity of Human Tonsils.**—The authors endeavored to determine first, whether or not there are toxic substances in the tonsils; second, if present, the nature of those substances, and third, the factors influencing the degree of toxicity. The material for study was obtained from a series of thirty-two tonsillectomies. The tonsils were received in sterile gauze. Extracts were then made by grinding them in a mortar with 10 c.c. of salt solution. The extract thus obtained was either centrifuged or filtered through paper and examined bacteriologically as follows: Blood agar plates were made by adding 1 c.c. of goat blood to 7 to 9 c.c. of agar; the plates were allowed to harden, and one drop of extract to be examined was smeared over the surface of two plates by means of a platinum spatula; after incubating, eighteen to twenty-four colonies were examined grossly and microscopically. The extracts were injected into animals. It was noted that of animals injected with toxic extracts the rabbit usually exhibited, besides the symptoms noted, a marked exophthalmos and contracted pupils. Post-mortem examinations were made in nearly all cases. In no instance were evidences of embolism or thrombosis found. The coagulation of the blood was delayed.

The extracts were prepared and injected in some cases immediately on removal of the tonsils. A few of them were prepared after freezing the tonsils for twenty-four hours; most of them were made a few hours after removal. The toxicity was apparently not affected by these varying conditions. The symptoms and changes in the animals resemble very much the conditions found in anaphylactic shock in rabbits, guinea-pigs and dogs. A few tonsils were apparently harmless in the doses of extract used. A search for the underlying factors was made by comparing the toxicity with the bacterial flora, structural changes and the amount of sediment, i. e., parenchyma, obtainable. The bacterial flora was the only factor that seemed to bear any relationship to the toxicity of the extract. In ten cases in which relatively nontoxic extracts were obtained there was only one in which typical punctate hemolytic streptococcus colonies were present. In the remaining twenty-three cases, from which highly toxic extracts were obtained, punctate, hemolytic, streptococcus colonies occurred fifteen times in large numbers. In three additional cases large colonies of hemolytic streptococci were found. In the remaining five a hemolytic staphylococcus was found three times. Hence the toxic extracts were usually obtained when typical hemolytic streptococci were found on the plates in large or predominating numbers.

34. **Anaerobic Organism Associated with Acute Rhinitis.**—The organism described by Tunnicliff has been found during the early stages of acute coryza, while the discharge is mucoid in character. It has been observed in all cases of acute rhinitis studied, twenty-five different persons having been examined during the acute attack, one during each of four attacks and another during each of five, so that altogether Tunnicliff has made observations during thirty-two distinct attacks. Many examinations were made during the course of the infection in nine of these cases. In the case of an accompanying pharyngitis, tonsillitis or bronchitis, the organism is also found, sometimes in large numbers in the sputum and mucus of the throat. It was also seen in a case of acute pharyngitis unaccompanied by rhinitis. It was present in small numbers in the nose in five cases examined when the rhinitis was disappearing. It was not found in twenty normal persons, in one case of suspected syphilis and one case of diphtheria. A few were observed in one normal nose.

The same organism has been seen in one case of chronic pharyngitis, being practically the only organism present, and in three cases of chronic rhinitis. In some of the lower animals it appears to be present since it was found in the noses of several normal guinea-pigs and rabbits examined, but seen only once in normal dogs. It is not present in the purulent discharge common in rabbits. This same organism was observed in the mucoid discharge from the nose of a dog.

Some of the organisms seem to be flexible and move a little, but most of them appear immobile. They vary from 5 to 8 microns in length and from one-third to one-half of a micron in width; the ends are pointed or slightly rounded; generally the bodies are slightly curved, but may be straight, wavy or bent at one end. A ring and an enlargement in the form of a ball are occasionally seen at one extremity. Sometimes an arrangement in rosettes and bunches occurs, the organisms radiating from a central mass. This organism is a strict anaerobe growing at 37 C. slowly—at least at first. Tunnicliff has isolated it in pure culture eight times, four times from the human nose, three times from the throat and once from the nose of a normal rabbit. It has been cultivated several other times but not isolated in pure culture. It was isolated on the surface of goat blood agar in large test-tubes, the agar being slightly alkaline to phenolphthalein. The cultures were made anaerobic by the Wright method of saturating the cotton stopper with a strong solution of pyrogallic acid and a 5 per cent. sodium hydroxid solution, closing the tube with a tightly fitting cork and sealing it with paraffin. A slight rhinitis has been produced several times in human subjects (twice in Tunnicliff, once in a laboratory assistant) by swabbing a nose which was free from this organism with a pure culture. A pharyngitis accompanied the rhinitis twice. Cultures were made twice and the organisms isolated in pure culture both times.

35. **Bacillus Isolated from Chronic Bronchitis.**—In making bacteriologic examinations of the sputum from a case of chronic bronchitis, suspected of being tuberculous, Tunnicliff found an anaerobic bacillus to be the predominating organism. The bacillus in the sputum is about two microns long by one-fourth micron in width. It was found in enormous numbers, generally in clumps. Some bacilli were seen inside of leukocytes. They were found as a rule in grayish masses in the sputum. Although resembling tubercle bacilli a good deal, they were not acid-fast nor did they retain Gram's stain. They stained uniformly and deeply with carbolgentian-violet, faintly with methylene blue, having a beaded appearance, as they did with carbol-fuchsin. With Giemsa they stained blue. The bacillus is a strict anaerobe, growing slowly, especially during the first generations. The first time it was isolated growth did not begin until the fifteenth day after inoculation. It was isolated on goat blood agar, the agar being slightly alkaline to phenolphthalein. The bacillus is not motile and does not possess a capsule. If inoculated in large numbers the bacillus appears to be toxic to guinea-pigs, but not pathogenic. Repeated intraperitoneal injections in a guinea-pig have so far produced no effect.

36. **Cultivation of Virus of Vaccinia.**—Briefly, from their work thus far on the application of Harrison's method to the cultivation of tissue *in vitro* to corneal tissue plus the virus of vaccinia, the authors are able to state that there is a multiplication of the virus of vaccinia, although no specific vaccine bodies are found in the preparations.

38. **Treatment of Tetanus.**—McClintock and Hutchings believe that the following conclusions are warranted by their experiments: Amputation after the appearance of symptoms is of no value. The toxin appearing in the blood-stream is self-limited even in the fatal cases. There is little if any value in the phenol treatment of the disease. If there is any gain, the authors believe it is probably due to the sedative action of the drug and not to any direct action on the disease process, and that this result may be obtained with greater certainty by other drugs. The magnesium sulphate as used in their experiments subcutaneously was of no value. Antitetanic serum alone has a definite, although usually insufficient, curative effect. From the observation of a large number of animals and quite a number of human beings dying of tetanus, the authors thought that the exhaustion due to the muscular contractions is a large factor in producing fatal results. For this reason much of their work has been given to the attempt to hold these convulsions in check. The presence of a large amount of toxin in the blood several days (in sheep it can be demonstrated four days) before the onset of clinical symptoms makes it imperative that a method be devised for easily determining this. With such a method it is quite probable that a large proportion of tetanus cases could be saved. At present the best tnat can be done in the treatment of tetanus is to neutralize the toxin with repeated doses of serum while controlling the muscular spasm with some drug.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, XL, No. 9, pp. 553-616

40 *Blindness and Tabes: New Method of Curing Ataxia. W. J. M. A. Maloney, New York.
41 Contralateral Oppenheim and Gordon Reflexes, with Observations in Two Cases. A. Myerson, Boston.
42 Psychic Epilepsy Occurring without Other Epileptic Phenomena. G. E. Price, Philadelphia.
43 Reflex Frequency and Its Clinical Value. W. B. Swift, Boston.

40. **Blindness and Tabes.**—Neither the occurrence of optic atrophy nor of blindness, Maloney points out, retards or influences the evolution of the structural changes which accompany the tabetic process in the spinal cord and elsewhere. The absence of spinal implication in primary tabetic optic atrophy is due to the accident of the localization of the morbid process, and not to any inhibitory influence arising from that localization. The law governing the distribution of the tabetic lesions is as follows: If special fragility exist at any site, and the amount of the tabetic poison be limited, then the site of election for the initial process is the fragile part and it will be the main site of the disease; if no special fragility be present, the disease will be diffuse; if special fragility occur and a large amount of tabetic poison be present, then the fragile is the primary site of the process which later will become generalized, spreading from part to part in the order of the least resistance.

The action of a diminution in visual acuity on ataxia Maloney postulates as follows: Improvement in ataxia will result from a lack of vision after an adequate interval has elapsed: (a) When incoordinating lesions remain stationary;

and the mental capacity for training is not destroyed by cerebral disease. (b) Even if the structural tabetic lesions leading to incoordination extend, provided that the effect of this extension be less than the compensating influence of the blindness. No change in the ataxia will follow loss of vision if the advance of the incoordinating lesion just neutralizes the beneficial influence of the blindness. Obviously this stationary phase can be but temporary. Increase of ataxia in spite of the blindness arises: (a) when the incoordinating lesions advance faster than the coordinating tendency of the blindness grows. Here increase in other morbid signs (spread of sensory and visceral affections) will show the progress of the ataxia to be merely one expression of a general advance in the tabetic spinal lesions and will serve to distinguish it from (b) when blindness is accompanied by cerebral deterioration of such extent as precludes training, and prevents improvement. Mott's conclusion that 50 per cent. of early optic atrophies develop general paralysis is interesting as affording a possible explanation of many of the cases of this class. The law of the relation of loss of vision to ataxia, Maloney says, should read: *Ceteris paribus*, of two tabetics, at any stage of the disease, one blind, the other seeing, the blind has the greater tendency to persist coordinate, the lesser tendency to become ataxic. The degree of this compensatory improvement in the power of coordination will, *ceteris paribus*, tend to rise with the duration of the blindness, according to the training capacity of the person.

For two years Maloney has been applying to the cure of ataxia the method of enhancing sensory perception which the blind teach. He says that the blindfolded tabetics can quickly be taught to appreviate their surviving postural and muscular sense impressions to such a degree that hopeless bedridden ataxics quickly learn to walk again. Moreover, the degree of improvement obtained seems greater than that coming from Frenkel's exercises. Maloney promises in a subsequent paper to describe this new mode of treating ataxia.

Kansas Medical Society Journal, Kansas City

September, XIII, No. 9, pp. 345-384

44 Pathology of Chronic Arthritis. L. S. Milne, Kansas City.
45 Some Recent Medical Legislation—the Remedy—What? F. A. Carmichael, Goodland.
46 Theoretical vs. Practical Politics in Medical Legislation. J. J Sippy, Belle Plain.
47 Medical Man in Legislature. J. S. Cummings, Bronson.

Kentucky Medical Journal, Bowling Green

September 15, XI, No. 19, pp. 779-812

48 Commercialism, Credulity and Criticism. Study of Some Conditions Tending to Produce Therapeutic Anarchy. V. E. Simpson, Louisville.
49 *Colostomy—Report of Cases. G. S. Hanes, Louisville.
50 Stricture of Urethra. J. T. Windell, Louisville.
51 Roentgen Ray as Aid in Diagnosis of Diseases of Internal Organs. D. Y. Keith, Louisville.
52 Bronchial Pneumonia. P. F. Barbour, Louisville.

49. **Colostomy.**—Hanes proposes a plan by which, he says, the simplest method of producing an artificial anus can be made one of the most reliable in regulating the escape of intestinal contents. The essential features of the ordinary Maydl operation are followed out. A glass, metal or hard rubber rod may be employed to support the spur of the intestine. At the appropriate time an opening is made in the intestinal wall which is to serve as an artificial anus. An incision is made directly over the rod and carried up the anterior wall of the intestine within half an inch of the skin at the upper angle of the abdominal wall. If the feces are liable to remain thin the opening should be at first small and later enlarged if necessity arises. Hanes' rule has been, without variation, for the rod to be removed in a few days succeeding the operation. It is in allowing this rod to remain permanently that simple dressings can be applied and the artificial opening surprisingly well controlled. In the first place the rod remains in the same relative position to the abdominal wall and the opening of the bowel. If there is retraction or distention of the abdomen the parts all maintain the same relative position.

The dressings for regulating the artificial opening consist in the application of a thin piece of gauze over the spur and rod, then a strip of gauze is thrown around the upper segment of the intestine, resting on the gauze, and the two ends of the strip are brought under the ends of the rod and tied. This arrangement makes a constriction around the upper and lower segments of the intestine, and on account of its position under the rod there is no way by which it can escape or relax from its position. The constriction remains constant whatever may be the position or condition of the abdominal wall. The amount of constriction can be regulated to meet the requirements of the individual case. A rubber band can be used, if preferred, instead of the gauze strip. There is no cumbersome and complicated apparatus to be removed when the time for evacuation arises. In addition to the light dressing just mentioned it is only necessary to apply a narrow elastic belt. The patient so far as the dressings are concerned is said to be no more uncomfortable than he would be in wearing an ordinary truss. He has done seven colostomy operations since January of this year and has employed the above method of dressings in six of these cases. It has now been more than seven months since the first operation was done. The patient declares that he has almost complete control over his bowel and experiences but little more discomfort than he did when his evacuations occurred in the normal way.

Missouri State Medical Association Journal, St. Louis

September, X, No. 3, pp. 81-120

53 Arterial Hypertension: Its Pathogenesis. S. P. Child, Kansas City.
54 Diagnosis and Postoperative Conduct of Acute Surgical Conditions. F. W. Bailey, St. Louis.
55 Some Problems Confronting Sanitarian. H. L. Reid, Charleston.
56 Accidents Due to Electric Currents and Their Treatment. W. R. Hewitt, St. Louis.
57 Physician, Patient and Surgeon. J. C. Boone, Charleston.
58 Stereoscopic Roentgenography. E. H. Skinner, Kansas City.

New Mexico Medical Journal, Las Cruces

September, X, No. 6, pp. 135-171

59 Systematic Examinations. F. J. Patchin, Albuquerque.
60 Reminiscences of Medical Men and Matters in Albuquerque. W. G. Hope, Albuquerque.
61 Acute Suppuration of Middle Ear. W. T. Salmon, Albuquerque.
62 Scorbutus. L. G. Rice, Albuquerque.

Northwest Medicine, Seattle, Wash.

September, V, No. 9, pp. 239-268

63 Principles Underlying Treatment of General Asthenic State. N. W. Jones, Portland, Ore.
64 Rational Treatment of Morphin Habituation. R. E. Bering, San Francisco.
65 Present-Day Classification of Nephritis and Therapeutic Applications (to be continued). F. Epplen, Spokane, Wash.
66 Obscure Mental Disorders a Menace to Public Safety. R. P. Smith, Seattle, Wash.
67 Relation of Specialist to General Practitioner. W. G. Cameron, Tacoma, Wash.
68 Primary Acute Mastoiditis. A. G. Greenstreet, Seattle, Wash.
69 Extra-Uterine Pregnancy. J. B. McNerthney, Tacoma, Wash.
70 Lipoma of Descending Colon Causing Intussusception. E. S. West, North Yakima, Wash.

Pennsylvania Medical Journal, Athens

September, XVI, No. 12, pp. 931-997

71 *Effects of Ingestion of Various Oils on Leukocytic Picture in Pulmonary Tuberculosis. M. Solis-Cohen and A. Strickler, Philadelphia.
72 Early Diagnosis and Treatment of Mental Diseases. F. X. Dercum, Philadelphia.
73 *Biologic Interpretation and Surgical Aspects in Painful Indigestion. G. W. Crile, Cleveland.
74 *Stomach from Standpoint of General Practitioner, Specialist and Surgeon. C. G. Stockton, Buffalo.

71. **Leukocytic Picture in Pulmonary Tuberculosis.**—Thirteen patients were given various oils by Solis-Cohen and Strickler, three were given cod-liver oil, two olive oil, three cotton-seed oil, three emulsion of petroleum and two an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates. The one who examined the blood never saw the patients, did not know what they were taking, nor when they began or ended treatment. The blood was stained with eosin and hematoxylin. The two adult patients on olive oil improved. In both there was a slight decrease in the first two classes of Arneth, while the lymphocytes were also diminished, moderately in one and slightly in the other. Of the three adult patients taking cod-liver oil two improved.

In these the first two classes of Arneth were unchanged or very slightly augmented at first and then were markedly decreased, a slight increase following in one. In the unimproved patient there was a moderate decrease in the percentage of these cells. The lymphocytes were moderately diminished and then markedly increased in one; markedly increased, then moderately decreased and later similarly increased in another, and markedly diminished in the third.

Three children who took cotton-seed oil said they felt better while taking it. The first two classes of Arneth at first were moderately increased in one, moderately diminished in another, and very slightly diminished in the third; these were followed in all by a marked or very marked fall, which in the third was again followed by a moderate rise. The lymphocytes were markedly increased in all, although at first the increase was slight in one and preceded by a slight diminution in another. This was followed by a slight increase in one and by a moderate decrease in two, a very slight increase supervening in one of these. Two adults and a child were given petroleum emulsion, with some improvement of the symptoms in two and no change in one—an adult. In both adults the first two classes of Arneth were slightly augmented, while in the child there was a slight fall, followed by a very marked fall. The lymphocytes were slightly diminished in the unaffected adult, in whom the medicine produced nausea, moderately increased in the benefited adult and slightly diminished in the child when the medicine caused vomiting, followed by a very slight rise as the dose was reduced. Two children, who were given an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates, said they felt better while taking the medicine. In both there was a marked and a very marked diminution in the first two classes of Arneth, preceded by a slight decrease in one and a slight increase in the other. The lymphocytes were moderately diminished in one despite an increase in the dose, and were slightly diminished at first in the other with the first small dose, but became markedly augmented as the dose was increased.

Of the thirteen patients given oils the first two classes of Arneth were diminished in eleven and increased in two; the lymphocytes were augmented in seven and decreased in six. There was a diminution in the percentage of lymphocytes and of polynuclear cells containing one and two nuclei in all the patients taking olive oil. There was an increase in the percentage of lymphocytes in all but one and a decrease in the first two classes of Arneth in all the patients taking cod-liver and cotton-seed oil. Of the three patients taking emulsion of petroleum the lymphocytes were increased in one and diminished in two, while the polynuclear cells with one and two nuclei were increased in two and diminished in one. In both the patients taking an emulsion of beef fat, butter fat, olive oil, lard and peanut oil with proteins and carbohydrates, the first two classes of Arneth were diminished, the percentage of lymphocytes being augmented in one and lessened in the other.

73 and 74.—Abstracted in The Journal, Nov. 16, 1912, p. 1818.

Public Health Journal, Toronto

September, IV, No. 9, pp. 491-538

75 Tuberculosis. M. Marshall.
76 Some Sins against Social and Sanitary Statutes. A. P. Reid, Halifax, N. S.
77 Public Health Legislation in Province of Quebec. J A. Hutchinson, Westmount, Quebec.
78 Queries and Answers. J. Roberts, Hamilton, Ont.
79 Criticism of "Facts Against Vaccination." J. F Palmer, London.
80 Necessity for Standardization and Universal Adoption of Medical School Inspection in United States. F. Allport, Chicago.

Tennessee State Medical Association Journal, Nashville

September, VI, No. 5, pp. 169-207

81 Treatment of Acute Intestinal Obstruction. W. A. Bryan, Nashville.
82 Chronic Intestinal Stasis. E. M. Sanders, Nashville.
83 Cecum Mobile, Chronic Appendicitis and Pericolic Membrane. J. M. Maury, Memphis.
84 Diagnosis and Treatment of Gastric and Duodenal Ulcer. W. A. Howard, Union City.
85 Some Surgical Diseases of Stomach—Plea for Their Early Recognition. E. E. Reisman, Chattanooga.

Wisconsin Medical Journal, Milwaukee

September, XII, No. 4, pp. 95-130

86 Treatment of Paresis in Light of Recent Discoveries. W. F. Lorenz, Mendota.
87 Pompeian Surgical Instruments. L. F. Frank, Milwaukee.
88 Use of Microscope by General Practitioner. D. Hopkinson, Milwaukee.
89 Therapeutic Uses of Thyroid Extract and Salvarsan. J. K. Chorlog, Madison.
90 Pituitary Extract and Ergot in Obstetrics. C. H. Davis, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 13, II, No. 2750, pp. 641-712

1 *Mind and Motive. D. Nicolson.
2 Malingering. J. Collie.
3 *Urinary Antiseptics. A. Jordan.
4 *Idem. J. W. T. Walker.
5 *Pharmacology of Body Temperature. H. G. Barbour.
6 *Use and Abuse of Hypnotics. W. H. Willcox.
7 Acid Child in Relation to Errors in Diet. A. Haig.
8 Errors in Dietetics. H. F. Winslow.
9 *Continuous Antiseptic Inhalation in Treatment of Pulmonary Tuberculosis. C. Muthu.
10 *Further Investigations of Action of Digitalis on Blood-Pressure in Man. F. W. Price.

1. See abstract from the *Lancet*.

3. **Urinary Antiseptics.**—This report is summarized as follows:

> The acidity of the urine is readily increased to an extent more than double the normal by acid sodium phosphate, and to a considerably less extent by benzoates. With large doses of citrates it is easily rendered alkaline Putrefaction of the urine and the growth of the staphylococcus is aided by alkalinity and delayed by acidity in proportion to the amount thereof. The reverse is the case with bacillus coli, but only to a small extent; its growth in both acid and alkaline urines quite luxuriant. Hexamethylenetetramin is not itself antiseptic, but acts by producing formaldehyd in the urine. This only takes place in acid urine and the drug is inert in alkaline urine. The degree of antiseptic power is proportionate to the acidity, and where this is normal or higher the drug is far the most efficient of all the urinary antiseptics. Sandalwood oil is a bad general antiseptic, but appears to have a specific action on the staphylococcus which may apply to cocci generally. It is of some use in alkaline urine. Benzoic and salicylic acids are very similar in action. Both are fairly efficient antiseptics in the urine, but are of very little use in alkaline urine. Boric acid is an efficient antiseptic. Its action is unaffected by alkalinity, so that it is the most efficient drug in alkaline urine we possess. Uva ursi is quite a good antiseptic. Its action is certainly not due chiefly to the arbutin it contains.

The whole of this work was done with a view to its clinical application, and the drugs were chosen and investigated with a view to obtaining increased knowledge of their therapeutic application.

The following, Jordan believes, are legitimate practical deductions:

> The use of hexamethylenetetramin (together with acid sodium phosphate which should always be given with it) as a prophylactic before any operation or procedure where the urine may become infected, is of the utmost value, since if the urine is clean and highly acid, and sufficient hexamethylenetetramin is given in small doses to keep it continually present, the urine will not support the life of any organism, and becomes indeed a powerfully antiseptic fluid. Hexamethylenetetramin should only be given where the urine is or can be made acid, otherwise it is inert. It should never be given with potassium citrate in *bacillus coli* infections. If it is desired to try the effect of making the urine alkaline in these conditions use boric acod and uva ursi infusion. Where the urine is undergoing ammoniacal fermentation in the bladder, bladder washes or some operative procedure will always be the most important part of the treatment. The best drugs to use are boric acid in large doses, uva ursi, and possibly sandalwood oil. Sandalwood oil is always worth trying in a cystitis due to the staphylococcus alone. When acid sodium phosphate is prescribed it is as well to write chemical formula (NaH_2PO_4) on the prescription and to ascertain that the right phosphate has been dispensed. It is worth while in giving this drug to estimate the acidity of the urine occasionally (after the simple manner described) to make sure that there is an increase; unless the acidity is kept above 4 or 5 hexamethylenetetramin will not act efficiently, and a high acidity is of much more value than a large dose of hexamethylenetetramin.

4. **Idem.**—Walker concludes that the most effective treatment in acute pure bacillus coli infection is, first, to neutralize the poison with alkalis, and when the symptoms have subsided to turn the urine acid and give urinary antiseptics in progressive doses. In subacute and chronic cases of infection the drugs used should be dictated by the reaction of the urine.

If the urine is acid hexamethylenamin should be given alone; if it is alkaline or neutral it should be combined with sodium acid phosphate or ammonium benzoate. In persistent infection the dosage of hexamethylenamin should be raised until symptoms of formaldehyd irritation commence to appear. The Rimini-Burnam test should be used in every patient treated by hexamethylenamin or other formaldehyd-producing drug. Without it the physician is completely in the dark as to whether formaldehyd is being liberated or not.

5. **Pharmacology of Body Temperature.**—Barbour's first group of experiments show that the health-regulating centers are directly susceptible to cold and heat, as well as to specific neuropharmacologic action. Analogous to the high temperatures which can be produced by the "heat puncture" experiment they have demonstrated a stimulation of the temperature centers with cold, caffein, and betatetrahydronaphtylamin. Depression, giving an antipyretic effect, has been obtained with chloral, antipyrin, quinin and epinephrin. The second series of investigations showed that animals deprived of one cerebrum and corpus striatum (often), or of both cerebra corporo striata and optic thalmi (always), run a subnormal temperature for the days which they survive the operation. In such animals, when given average doses of antipyrin, the phenomena of increased heat dissipation do not occur, and those of heat production are exaggerated. The total effect is a paradoxic rise in body temperature.

6. **Use and Abuse of Hypnotics.**—It is emphasized by Willcox that in every case of supposed "insomnia," it will be well first to make quite sure that absence of sleep really exists. Not infrequently a patient imagines that he has had a sleepless night, whereas he may have slept for several hours. When insomnia really exists it must be remembered that this condition is only a symptom, and its cause in every case must be very thoroughly and carefully investigated. The immediate resource to hypnotic drugs is greatly to be deprecated, since frequently harmful results follow this procedure. Not only is there danger of the development of a drug habit, but commonly the patient develops a sad lack of self-reliance, and is apt to think that he cannot exist without these artificial aids to sleep. It must also be remembered that "sleep induced by drugs" is not the same as natural sleep, and has not the same beneficial value. In every case of insomnia, after having carefully determined the etiologic factors, the first therapeutic measures should be directed toward the treatment and removal of the cause. Any pathologic condition present should be treated by those special therapeutic measures most suitable for the particular case. In addition, general measures for promoting sleep should be considered carefully and recommended, such as a modification of the mode of life and habits of the patient as regards work, rest, diet, exercise, smoking, etc. The conditions of the bedroom and bed itself as regards comfort, quiet, proper ventilation, warmth, etc., should be made suitable. The taking of a hot drink before bedtime may be found to suffice. Simple measures of hydrotherapy, such as baths, douches and in severe cases warm or cold packs, may be employed before hypnotic drugs are given. In some cases massage or electrical treatment have been found helpful. Willcox points out that in many cases of insomnia the employment of such measures as those just described fails to remove this distressing symptom, and in such cases in which the sleeplessness is likely of itself to exercise a harmful effect on the patient's health, it will be advisable to employ some suitable hypnotic drug.

9. **Antiseptic Inhalation in Pulmonary Tuberculosis.**—Many years' close observation leaves no doubt in Muthu's mind that by continuous inhalation volatile antiseptics in the form of vapor mixed with air enter the alveoli as well as the bronchial passages, and get slowly absorbed into the circulation in the lungs and reach the tuberculous focus. Ever since 1895 he has been treating pulmonary tuberculosis with antiseptic inhalations; and since 1899 he has used them in combination with sanatorium treatment. He uses two methods in the sanatorium: the lamp method—where formaldehyd is vaporized in a methylated spirit-lamp, containing a hot-water boiler, the inhalation being taken in patients' own rooms with wholly or partially closed doors and windows for half an hour at a time; the continuous method. The mode of procedure is as follows: When a patient first comes to the sanatorium he is sent to bed and kept there if he shows any signs of a rise of temperature. He has the inhaler for two hours the first day, four hours the second, six hours the third, and eight hours the fourth and the following days. In this way he is gradually prepared to use the inhaler a great part of the day as well as the night. Patients keep on the inhaler while they are walking, resting, reading or playing games, etc. In fact, they are encouraged to keep on the mask at every opportunity from the time they wake up in the morning till late at night, and even during the night. And as they improve and show signs of arrest of the disease the hours are gradually reduced to six, four and two hours a day.

The various solutions used are as follows:

A.—Formaldehyd, 2½ per cent.; chloroform, ʒj; menthol, gr.x; ol. pini pumilin., ♏x; spt. vin. rect. ad ℥j.

B.—Formaldehyd, 5 per cent.; guaiacol, ʒj; chloroform, ʒij; menthol, gr.xv; ol. pini pumilin., ♏xv; spt. vin. rect. ad ℥j.

C.—Guaiacol, ʒij; terebene, ʒj; menthol, gr.xv; ol. pini pumilin., ♏xv; chloroform, ʒij; spt. vin. rect. ad ℥j.

D.—Guaiacol, ʒij; iodin, ʒj; terebene, ʒj; ol. pini pumilin., ♏xv; chloroform, ʒij; spt. vin. rect. ad ℥j.

N.B.—About 10 drops to be sprinkled on the inhaler about every half to one hour.

10. **Action of Digitalis on Blood-Pressure in Man.**—In all thirty-seven cases have been observed by Price. Of these, twenty-six were cases exhibiting some cardiovascular affection, including arteriosclerosis, myocardial degeneration and valvular disease (mitral and aortic), the systolic blood-pressure in some of these being subnormal, in others normal, and in others supernormal; eleven were cases in which on examination of the radial artery and heart nothing abnormal was found. In only one case was there a rise in blood-pressure, in several there was a fall, and in the remaining cases there was no observable change. In a considerable percentage of cases considerable fluctuations in the systolic blood-pressure occurred from day to day. In one case the variations amounted to 26 mm. of mercury. All the patients were first of all given a course of rest before any drug was administered. This plan prevented any drug being credited with results which were in reality due to adventitious circumstances. The sphygmomanometer used was Martin's modification of the Riva-Rocci. Only the systolic pressure was taken, for, in their opinion, it is not certain that as yet they have a method of accurately determining the diastolic pressure. The measurements were taken either every day or nearly every day. In regard to dosage, as a rule Price gave a dram, but sometimes 45 minims, of the tincture of digitalis per day. The cases cited in the present paper were 7 cases of mitral disease, 1 case of mitral disease with also a systolic murmur over the sternum, 1 case of cardiosclerosis, 4 cases of double aortic and mitral systolic bruit, and 2 cases of double mitral and double aortic disease. In all excepting 5 cases there was no observable change in the blood-pressure during the administration of the drug. Of these 5 cases, in 3 there was a fall equal to about 20 mm. of mercury toward the end of the period of administration (in 1 of these cases the fall remained after the drug was stopped); in 1 there was probably a fall; and in 1 there was a rise equal to about 20 mm.—namely, in a case of double aortic disease with also a mitral systolic murmur, arterial wall thick and somewhat tortuous, cyanosis, orthopnea, slight jaundice, much edema, and slight albuminuria, and with a blood-pressure varying between 170 and 180 mm. In some cases observations were taken over prolonged periods, even up to five months.

Dublin Journal of Medical Science

September, III, No. 501, pp. 161-240

11 Medical Inspection of School Children. W. J. Thompson.
12 Pathologic Report of Rotunda Hospital for One Year, Nov. 1, 1911, to Oct. 31, 1912. R. J. Rowlette.
13 Some Sequelae of Labor. B. A. H. Solomons.
14 Epidemic Poliomyelitis, or "Infective Paralysis." J. A. W. Ponton.

Journal of Tropical Medicine and Hygiene, London

September 1, XVI, No. 17, pp. 257-272

15 Meteorology of Malaria. M. D. O'Connell.
16 Case of Acute Agchylostomiasis Treated by Autogenous Vaccine of a Coliform Organism. R. G. Archibald.

Lancet, London

September 13, II, No. 4698, pp. 783-850

17 Continuity. O. Lodge.
18 *Mind and Motive: Criminal Lunacy. D. Nicolson.
19 Treatment of Brain Tumor. C. A. Ballance.
20 *Rupture of Spleen; Splenectomy; Recovery. R. Scheult.
21 Anesthesia in Acute Inflammations of Mouth and Pharynx. T. B. Layton.
22 *Avoidance of Sudden Death from Induction of Artificial Pneumothorax. C. Lillingston.
23 *Degeneration of Nucleus Lentiformis, Associated with Cirrhosis of Liver. A. T. Henrici.

18. **Mind and Motive.**—In this lengthy paper Nicolson discusses insanity and crime, criminal lunacy, medical jurisprudence of insanity, knowledge of right and wrong, preexisting mental enfeeblement; its degree and character, the question of infidelity, alcoholic excess—(1) delirium tremens, (2) drunkenness to oblivion, and (3) simple drunkenness, epilepsy, delusions, malingering, imposture, feigned insanity, etc. He denies emphatically the heredity of crime while making full allowance for the effects of environment and education, and while laying stress on the hereditary transmission of insanity as a mental condition or neurosis. Nicolson asks that no lunatic shall be hanged, and that no mere criminal shall, on the plea of insanity, be allowed to escape the due punishment for his act of murder. The tests applicable and the difficulties which the medical practitioner will have to surmount if he is to influence rightly the course of justice, discharging a responsibility the weight of which none called on to undertake it can fail to realize, are also considered by Nicolson. He says that what may be treated as knowledge of right and wrong by laymen administering the law may have existed side by side with insanity in a man who is a lunatic, medically recognizable as such and who ought not to be hanged. He holds that no medical man is fully equipped for the practice of his profession unless he has had some months' experience—the more the better—as a medical officer in an asylum. To lack of such experience he ascribes the existence of preventable criminal lunacy, finding this flaw in our social defenses to be due in a large number of cases to be the neglect of symptoms which should indicate the desirability of certification and treatment in an asylum.

20. **Rupture of Spleen.**—Looking up the literature on this subject Scheult found it stated that removal of the spleen was practiced for the first time by Zuccarelli (Saccharelli) in 1554; the operation fell at once into disfavor, for there is no record of its repetition until more than three centuries later, when M. Pean, of Paris, successfully extirpated a cystic spleen in 1867. Since that time the operation has been performed for various conditions and has become a well-established surgical procedure. Up to a few years ago, however, the mortality rate was high; in 1887 it seemed to have been as high as 73 per cent.; Cecil in 1894 estimated it at 51.6 per cent. Since that date there have been decided improvements in the results, due largely, Scheult thinks, to the abandonment of the operation for splenic leukemia and other unfavorable conditions which proved almost invariably fatal. In 1906, B. B. Davis was able to place the mortality at 18 per cent. As regards the removal of the spleen for rupture Reigner recorded in 1893 the first successful case. In 1902 Berger had collected from the literature sixty-nine cases of this nature, with twenty-nine deaths—a mortality of 42 per cent. In 1906 Horz had obtained the reports of thirty-five additional cases with a mortality of 29 per cent. Splenectomy consecutive to wounds of the organ has therefore been attended with a fair measure of success; in any case Scheult says, it is, beyond doubt, the most rational and hopeful treatment, especially when it is borne in mind that the mortality in the unoperated cases has been computed to be more than twice that of the cases in which splenectomy has been performed.

22. **Avoidance of Sudden Death from Induction of Artificial Pneumothorax.**—Most cases of sudden death from the induction of a pneumothorax in Lillingston's opinion are due to errors of technic and he claims that with care these accidents should be extremely rare, and they should not prevent the adoption of the treatment in suitable cases. The most serious accidents are pleural reflex, including laryngeal spasm, gas embolism, aspiration pneumonia, and an uncontrollable accidental pneumothorax due to puncture or rupture of the visceral pleura. Forlanini in 1912 had performed 10,000 operations on 134 patients, of whom 2 died from gas embolism, and 12 exhibited serious symptoms which were very alarming in 5 cases but never fatal. Saugman in 1913, with an experience of about 5,000 operations on 186 patients, had seen two fatal cases at the first injection. Vere Pearson, with an experience of sixteen patients, has seen no fatal accident; and Lillingston with an experience of thirty-two patients and several hundred punctures of the chest, has met with no more alarming symptom than slight shock of a few minutes' duration in one case. The following "don'ts" are mentioned:

> 1. Don't inject gas without satisfactory manometric oscillations, or at a pressure exceeding the atmospheric pressure when beginning a first injection. 2. Don't spare anesthetics. 3. Don't create a high intrapleural pressure. A pressure of 40 cm. of water may cause no discomfort during an injection, but it may be more than doubled by a subsequent fit of coughing, and a leak may thus be sprung in the pneumothorax. 4. Don't induce a pneumothorax during menstruation when reflex excitability may be raised. 5. Don't puncture on the first occasion in many different places in a search for free pleura; patients have collapsed after the sixth or seventh puncture who have tolerated the first punctures well. It is better to continue the search for free pleura in a day or two. 6. Don't inject gas rapidly or at a low temperature. Brauer has once seen symptoms of pleural reflex after the use of cold gas. 7. Don't use large needles or needles with rough surfaces; and don't let the rubber tubing drag on the needle during an injection. 8. Don't inject till the patient's posture is easy and comfortable. 9. Don't hesitate to withdraw the needle at the earliest sign of collapse. 10. Don't operate without brandy and a hypodermic syringe full of ether handy.

23. ***Degeneration of Nucleus Lentiformis.***—The association of cirrhosis of the liver, with degeneration of the nucleus lentiformis in this disease, Henrici says, is so constant as to leave no doubt that there is an important relationship between them. Concerning this relationship two hypotheses present themselves: first, that the same substance which produces the liver changes also affects the lenticular nucleus; and, second, that there is elaborated in the diseased liver some toxic body which has a peculiar affinity for the tissues of the corpus striatum. In a case cited by Henrici there was a marked history of alcoholism, and the liver definitely showed an early stage of Laennec's cirrhosis.

Annales de l'Institut Pasteur, Paris

August, XXVII, No. 8, pp. 597-700

24 *Vaccination against Typhoid. III. E. Metchnikoff and A. Besredka. (Deux ans de vaccination antityphique avec du virus sensibilisé vivant.) A. Besredka. (Vaccinothérapie de la fièvre typhoide par le virus sensibilisé de Besredka.) A. Delteil, L. Nègre and M. Raynaud.
25 *Persian Miana Bug (a Tick) as Host of Spirochetes. (Argas et spirochètes.) E. Marchoux and L. Couvy.
26 Plant Physiology. II. (Recherches de physiologie végétale.) P. Mazé.
27 *Lesions of Organs of Internal Secretion from Toxic Action of Helminths. (Lésions des organes à sécrétion interne dans l'intoxication vermineuse.) S. P. Bedson.

24. **Vaccination against Typhoid.**—Metchnikoff reports that three chimpanzees treated with Besredka's sensitized living virus bore without harm a dose of typhoid virus which speedily induced typhoid fever in the control chimpanzee. The virus injected under the skin seems to be destroyed there; none of it passes into the blood, urine or stools. One of the soldiers injected with this sensitized virus in the army in Africa contracted typhoid afterward and died, and Metchnikoff believes that the dose must have been too small. Chimpanzees require a larger dose than was used in early trials of the virus. Besredka has injected his virus in 800 persons in various institutions, and there has been no typhoid among them although several cases have developed during the two years among the non-vaccinated. There do not seem to be any contra-indications to its use. he says, adding that by subcutaneous or intramuscular injection it is harmless for man even in large doses. The third article reports favorable

results with the virus given in forty-eight cases of pronounced typhoid.

25. **Ticks and Spirochetes.**—The spirochetes invade all the organs of these insects and even their eggs. One egg of the *Argus persicus* contained more than thirty spirochetes.

27. **Lesions from Helminth Toxins.**—Bedson found that of all the glands with an intestinal secretion, the adrenals seem to suffer most from the toxic action of helminths, whether the intoxication is acute or chronic. The thyroid may also show lesions but seldom except in subacute and chronic intoxication from this cause. The other ductless glands show but slight lesions. His research was done on guinea-pigs, injected with extracts of various tape-worms or with juice from a horse ascaris. The character of the lesions seemed absolutely the same whatever the helminth, and the reaction seemed of the same nature as that to microbian toxins or most chemical poisons.

Journal de Médecine de Bordeaux

August 31, LXXXIV, No. 35, pp. 559-572

28 Identical Malformations in Pair of Syphilitic Twins. Lefour and Balard.

Presse Médicale, Paris

September 3, XXI, No. 72, pp. 721-728

29 Non-Malignant Tumor of the Cecum. (Fibrome pur du caecum.) J. L. Faure and B. Desplas.

Revue de Gynécologie, Paris

July, XXI, No. 1, pp. 1-96

30 *Early Abortion. (De l'avortement précoce.) V. Wallich.
31 *Conservative Operative Treatment of Tuberculous Processes in Ovaries or Tubes. Patel and Olivier.
32 Pseudomyxoma of the Peritoneum of Appendicitic Origin. A. Deletrez.

30. **Early Abortion.**—Wallich emphasizes that too little attention has been paid heretofore to the cases of early abortion, and yet this may be the starting point of infectious processes in the uterus, ovaries, tubes or peritoneum, or from the relics of the placenta a neoplasm may develop—all of which may be prevented by appropriate treatment in time. The energy of the decidual reaction seems to be more intense when the embryo has lost its vitality, the mucosa apparently striving to throw up a barrier against the cellular elements of the chorion. The result may be a hydatidiform mole, and in prophylaxis of this and other trouble from this source we should be on the alert for the symptoms of early abortion, and not temporize too long in treatment of consecutive uterine hemorrhages which may be the only manifestation at first of the uterine neoplasm. Early abortion is most liable to occur at the first onset of the premenstrual congestion. It is this first congestion after conception which prepares for the embedding of the ovum. The slight disturbances following conception, which can generally be retrospectively traced, cease or become attenuated at this time of the premenstrual congestion. The congestion is aggravated by sexual excitement, by auto-intoxication or other causes favoring congestion in the pelvis. For this reason women inclined to abortion should refrain from everything liable to induce this congestion during the six days of the premenstrual period, keeping very quiet in body and mind, the bowels kept open with mild laxatives or enemas, the diet very simple, possibly refraining from meat and alcohol.

Wallich insists on the necessity for impressing on women that every discharge of blood should be carefully inspected during the entire genital period, and all clots and débris of any kind should be saved for examination. If this is done systematically, as a matter of course, inspection of the membranes expelled will show the state of the abortion. Histologic examination will throw still further light on the case. Treatment should begin at once when the chorionic "infection" starts, and this probably occurs as soon as the ovum dies. It should be removed without delay. Wallich gives an illustrated description of a number of cases which illustrate the importance of these views, showing the remarkable proliferation of tissue as the reaction to the presence of the dead ovum. The specimens dated from the thirtieth to the forty-third day after the last menstruation.

31. **Operative Treatment of Tuberculous Processes in Ovaries or Tubes.**—Patel and Olivier have been reexamining recently 121 patients who have been operated on since 1900 for tuberculosis of the ovaries or tubes. They give the details and outcome in thirty-three cases in which the operation was truly conservative, leaving the uterus or one ovary or tube. The operation was by the vaginal route in sixteen cases and twelve of these patients had to be operated on again, and by a laparotomy, before the lesions actually healed. Of the four others one died and the other required several operations; five in one instance, but the woman was finally cured and has been in good health for seven and a half years.

It is foolish, they declare, to save the uterus after the adnexa has been removed; it is not only useless but is liable to develop myomas and cancer. They query whether it is wise to attempt to retain the adnexa when once a tuberculous process has become installed at any point in them. Examination of eighty women as to the effects of castration under these circumstances showed that there had been scarcely any symptoms attributable to the artificial menopause. The tuberculous process had evidently been preparing them for the castration so that the loss of the ovaries did not affect them as under other conditions. A second operation was never required in the abdominal cases. When the adnexa were left, they are generally tender and the women suffer a little but never enough to demand their removal. On the whole, there is seldom need for restricting the operation to conservative measures in case of tuberculosis of the adnexa. The degree of virulence of the infection, the extent of the lesions and the financial condition should all be taken into account. The necessity for earning her livelihood may turn the scale in favor of suppression of a function which is not vitally necessary.

Semaine Médicale, Paris

September 10, XXXIII, No. 37, pp. 433-444

33 *Calcium Reaction in Diagnosis. (La calciréaction et sa signification diagnostique.) G. Rodillon.

33. **Calcium Content of the Urine in Diagnosis.**—Rodillon expatiates on the importance of abnormal losses of calcium as preparing the soil for development of tuberculosis. The French have long emphasized the pathologic importance of the "demineralization of pretuberculosis," and Rodillon has worked out a simple method for detecting it. The calcium is eliminated mainly by the intestines and kidneys: on a vegetable diet by the intestines, and on a meat diet by the kidneys. Consequently the patient must be on a meat diet for two or three days before the test. All that is needed for it is (1) a graduated cylindrical glass tube, 10 cm. high and 15 mm. wide, with a flat bottom; (2) a white plate or card with a heavy black line across the center, 2 or 3 mm. wide; (3) the reagent which is a mixture of neutral ammonium oxalate, 3 gm.; acetic acid crystals, 5 gm.; distilled water, 40 gm. The cylindrical tube is filled to the 5 c.c. mark with the reagent and then with an aqueous solution of some calcium salt, corresponding to 0.2 gm. of lime (CaO) to the liter, up to the 10 c.c. mark. The contents are mixed and then the tube is set on the black line on the card and the fluid is taken up and discarded with a dropper until the black line becomes perceptible below, looking down into the tube. The figure of the graduated scale to which the contents of the tube then reach is thus the standard for comparison. It is usually at the 2.4 c.c. mark. The test is then repeated with the urine to be examined: 5 c.c. of urine is added to the 5 c.c. of the reagent in the tube, and the height of the fluid when the black mark becomes perceptible is the "calcimetric index." The base of the equation is the 0.2 gm. of calcium per liter. This is multiplied by the standard index first obtained, divided by the patient's index. For example, x equals 0.2 multiplied by 2.4 and divided by 3.2 c.c. The index thus derived is 0.15; this represents the proportion of calcium in the liter of the urine tested. In health, on a meat diet, the index ranges from 0 to 0.6 gm.; demineralization is certain when there is over 0.9 gm. On a mixed diet, the normal range stops at 0.5 gm., and on a vegetable diet at 0.2 gm.

Archiv für Gynaekologie, Berlin

C, No. 2, pp. 233-454. Last indexed September 27, p. 1078

34 *Structure of the Uterine Mucosa in Health and Disease. (Die Klinik der Endometritis mit bes. Berücksichtigung der unregelmässigen Gebärmutterblutungen.) T. Hitschmann and L. Adler.
35 *Value of Gonococcus Vaccine in Gynecology from Differential and Therapeutic Standpoints. H. Hauser.
36 Uterine Myomas and Myosarcomas. H. Raab.
37 Chorio-Epithelioma. (Ueber maligne Entartung der Epithelien primär verschleppter Chorionzotten.) T. Nagy.
38 The Finer Network Structure in the Nerves and Placentar Epithelium. (Golgis Apparate reticolare interne in den Plazentarepithelien.) E. A. Bjorkenheim.

34. **Endometritis and Irregular Uterine Hemorrhage.**—Hitschmann and Adler here answer the objections that have been made to their statements five years ago in regard to the structure of the uterine mucosa in normal and inflamed conditions. They review fifty articles that have been published on the subject and declare emphatically that irregular bleeding and pains do not belong to the clinical picture of chronic endometritis. The only sign of chronic endometritis is a suppurative discharge, the fluor. This corresponds to the anatomic findings. Acute or chronic interstitial endometritis is characterized by a round-cell discharge easy to distinguish from the physiologic secretions and from desquamating catarrh of the vagina.

The inflammation with chronic endometritis burrows deep into the tissues and patches burrow here and there absolutely inaccessible to the curet, while they are constantly liable to infect the mucosa anew. It is hard to see how curetting is going to cure such a process. The older the process the less the exudation. Curetting is more liable to aggravate it, as it inevitably and naturally fails to remove all the diseased tissue. Caustic applications also act only on the surface and do not reach the deeper diseased tissues. It seems evident that, to date, radical effectual treatment of a suppurative discharge from the uterus is still an unsolved problem. This does not apply of course to the endometritis which follows abortion or delivery; curetting or formaldehyd here prove their usefulness.

35. **Gonococcus Vaccine in Diagnosis and Treatment.**—Hauser calls attention to the general or focal reaction to the vaccine as very important for the differential diagnosis of gynecologic affections. He found the reaction always positive in the recent gonorrhea cases, with gonococci, and constantly negative when gonorrhea could be positively excluded. In the dubious cases the general or focal reaction often proved a great help, although it is not invariably specific in the vaguer cases. A positive focal reaction is the chief criterion. The history of vaccine diagnosis and therapy of gonorrhea is reviewed in detail and the works of others in this line. He applied the vaccine in differentiation in ninety-five cases. Outside of the typical groups the test failed in four cases and the findings were dubious in five, so that only in 9.5 per cent. of the total was the reaction misleading or unsatisfactory. He warns that a negative reaction does not exclude gonorrhea as the reaction may be hindered by mixed infection or the dose may have been too small or the lesion may be too old to react. His experience with vaccine therapy was quite favorable, but he warns that it is far from being absolutely harmless and should be applied only under constant medical control; never to out-patients. The results were excellent in 29.4 per cent. and satisfactory in 52.9 per cent.; thus 82.3 per cent. of his seventeen patients with gonorrheal lesions in ovary or tube were materially benefited.

Archiv für klinische Chirurgie, Berlin

CII, No. 1, pp. 1-307. Last indexed August 30, p. 715

39 Experimental Pathology of the Pericardium. L. Rehn.
40 *Transplantation of Tendons. (Klinischer Beitrag zur freien Sehnenverpflanzung.) E. Rehn.
41 *End-Results of Transplanted Bones and Joints. (Einige Dauerresultate der Transplantation.) H. Küttner and I. Jianu.
42 *Connection between Acute Pancreatitis and Gall-Bladder Disease. (Experimente und klinische Betrachtungen über die Zusammenhänge zwischen acuter Pankreatitis und Erkrankungen der Gallenblase.) O. Nordmann.
43 Experimental Transplantation of Mucosa from Bladder, Stomach, etc. (Die freie Schleimhautüberpflanzung—Abdominalschleimhaut—im Experiment.) G. Axhausen.
44 *Traumatic Abscess in the Brain. (Ueber den traumatischen Gehirnabscess, seine Complication durch Extraduralabscess und eine Methode des plastischen Verschlusses operativer Schädeldefecte.) F. Kempf.
45 Collargol. W. Kausch.
46 *Treatment of Joint Tuberculosis with Fistula. (Operation und offene Behandlungsmethode der eitrigen fistulösen Gelenktuberkulose.) W. v. Wrzesniowski.
47 Importance for Surgical Work of Knowing the Coagulating Time. (Welchen praktischen Werth haben Blutgerinnungsbestimmungen für die Chirurgie.) Schlossmann.
48 Tumor in Testicle Following Herniotomy. (Fall von entzündlicher schnell wachsender Hodengeschwulst nach Bruchoperation.) G. Lerda.
49 Infection in Wounds on Battle Field. (Die Infection im Kriege—mit Ausschluss der specifischen Infectionen und der allgemeinen Infection.) W. v. Oettingen.
50 Serodiagnosis of Carcinoma. G. Wolfsohn.
51 Tumors of Carotid Gland. (Geschwülste der Carotisdrüse.) C. E. Neuber.
52 Giant Growth of One Hand. (Fall von angeborenem partiellen Riesenwuchs.) H. Hinterstoisser.
53 Absorbable Flat Rings to Aid in Suturing Vessels. (Zur Technik der Gefässchirurgie.) E. Jeger and E. Unger.

40. **Tendon Transplantation.**—Rehn gives an illustrated description of several among the ten cases in the last year in which he had implanted a strip of tendon from some neighboring region after a trauma cutting the tendons in the hand; in one case the operation was on the foot. Two of the patients were children of 8 and 11, the others were mostly young adults. The operation on the foot was done for paralytic club-foot from infantile paralysis at six months. The results were most excellent when the extensor tendons were involved in the paralysis; conditions here are particularly adapted for restitution of function. The task is much more difficult when the flexor tendons of the hands are involved. A minor point which it may prove useful to remember is that wearing a ring may help to substitute the defective transverse ligament. The communication issues from the clinic at Jena in charge of Lexer who has been a pioneer in transplantation of both soft parts and bones.

41. **End-Results of Transplantation of Bones and Joints.**—Küttner reports experiments in this line with bones from cadavers and monkeys, with the post-mortem findings. He remarks that it is amazing to see how Nature uses the implanted bone and how she seems to be grateful for the aid thus afforded. The true bone substance dies, but this aseptic necrosis of the engrafted bone seems to be of no importance from the surgical standpoint, as the muscles grow to it and fine function results, the graft thus proving a prothesis more perfect than can be provided in any other way. The implanted bone tissue is gradually absorbed in the course of years but new construction goes hand-in-hand with the absorption, so that Küttner does not hesitate to say that the end-result is the same as if the implant had not died but had been kept living from the start. One of the cases was that of an implanted hip-joint and he describes the histologic findings on sections of the head of the femur and of the bone above the point of implantation at this point. The second case was also that of a chondrosarcoma of the upper third of the femur and the implanted bone and joint were taken from a cadaver three hours after death.

In the first case the graft of the entire upper part of the femur had been taken from a cadaver thirty-five hours after death. The patient died thirteen months later from metastases in the spine. He gives colored plates of the findings on lengthwise section of the femur. The implant shows solid callus at the point of junction, and there is not a trace of absorption anywhere. The gluteal muscles not only grew to the graft but grew to it at the normal points and a perfect joint capsule developed in time. The illustration shows the almost unbelievable normal attachments of the muscles in the region of the greater trochanter, which had had to be nearly all resected when implanted as it pressed too hard on the soft parts. In the second case the joint was taken from a cadaver three hours after death. The bone fractured later at the point of junction in consequence of an operation for recurrence of the chondrosarcoma, but firm consolidation soon followed. Several other operations for repeated recurrence became necessary until finally two years and three months after the implantation, exarticulation at the hip-joint was required. The results here were similar to those of the first case, substitution for the actual bone substance.

He also illustrates the findings in a child with a congenital defect of the fibula which he corrected by implantation of the fibula from a Java monkey. The Roentgen ray pictures twenty months later show the most gratifying results and justify the extensive application of this method of utilizing bones and joints from monkeys. He has performed several operations of the kind. The bone is taken from the monkey under general anesthesia; the animal is then killed at once and examined with minute care. If necropsy shows that the animal is entirely healthy, the bone, still warm, is then transferred to the patient.

Jianu reports a number of interesting cases, among them what he thinks is the first successful reimplanting of the left forearm and hand which had been torn off in a machine accident. The muscles had been severed in the lower third of the forearm as also both the radial and ulnar arteries and both bones were fractured. The hand was connected only by a thin bridge of skin, 3 cm. wide, at the back of the arm, consisting of merely cellular tissue and one subcutaneous vein. Half an hour after the accident the muscles were sutured, the median and ulnar nerves were joined, and the stumps of the radial artery were invaginated. The ulnar artery was too much injured to attempt its restoration. No attempt at anastomosis of the veins was made as the supply was considered sufficient. The hand was preserved, and now, three years afterward, the sensory, motor and vasomotor disturbances seem to be retrogressing. In some other autoimplants of fingers or foot and in some experimental research the outcome was not successful and the replanted part had to be removed. An implanted testicle from another patient was absorbed after a few months and no effect could be detected from its presence. The implantation of the ovaries from a rabbit in a woman suffering from the artificial menopause was followed by the subsidence of all the disturbances due to loss of ovarian functioning after castration. Although the implanted ovaries were absorbed by the end of three months, yet they seemed to supply the needed stimulus for the harmonious working of the ductless glands.

In another group of cases Jianu transplanted the hypogastric artery in a pedunculated graft to restore a segment of the ureter in a woman after hysterectomy for cancer. The segment of the artery was of course deprived of all connection with the arterial circulation but it was left unmolested in respect to its relations with adjacent tissues; the upper end of the ureter was pushed into the upper end of the artery and the lower end of the artery into the lower stump of the ureter. In another case a segment of the facial was implanted to take the place of Steno's duct and it acts ideally. In another, a segment of the epigastric artery was used to restore the vas deferens in a young man whose left testicle had been excised three years before for tuberculosis. This principle of pedunculated grafts was also successfully applied to restore a segment in the femoral vein, utilizing for the purpose a flap taken from the hernial sac. In conclusion he reports transplantation from one animal to another joined together like the Siamese twins.

42. **Connection between Acute Pancreatitis and Disease of the Gall-Bladder.**—Nordmann was able to induce acute pancreatitis in dogs without fail by closing the outlet to the pancreas and inoculating the gall-bladder with bacteria. A gall-stone at the mouth of the common bile duct is liable to cause the secretion to back up into the pancreatic duct, and acute pancreatitis is almost inevitable when infected bile thus reaches the pancreas. The pancreas tissue suffers from the infection which opens the door to secondary autodigestion of the tissue from the pancreatic juice with resulting fat-tissue necrosis. His experience in eight operative cases of acute pancreatitis confirms in every respect the deductions drawn from fourteen dogs on which he operated. His patients were between 33 and 67 years old, and six had had repeated gall-stone colics. His clinical experience further shows that the prognosis is almost invariably bad when the pancreatitis develops suddenly, with signs of very severe shock and collapse. An operation then may prove the last straw, while otherwise there is always the hope that the severest symptoms of peritonitis with acute pancreatitis may become arrested and encapsulated abscesses develop, the opening of which makes much less demands on the patient than a laparotomy. This occurred in two of his cases. In one the acute pancreatitis followed gall-stone colic, and very painful peritonitis, mainly in the epigastrium, accompanied the severe collapse. The symptoms gradually improved and a subphrenic abscess developed on the left side, which healed after it had been evacuated and the woman recovered, although there were evidences of necrosis in the subcutaneous fat.

In a second case the same sequence of events occurred; the diffuse peritonitic symptoms gradually subsided and an abscess developed in the left lumbar region. Nordmann applied various technics in his cases, finally becoming converted to the advantages of a median incision plus possibly an oblique incision toward the right costal arch. He also emphasizes the importance of draining the common bile duct. Large amounts of pancreatic juice were found in the discharge from the drain, confirming the close communication between the ducts. The sooner operative treatment is applied in pancreatitis the better. It should consist in an ample incision, opening the lesser sac of the omentum, decapsulating the pancreas, tamponing the exposed gland and draining the lesser sac. At the same time the gall-bladder should be opened. This should never be omitted, even when there is no suspicion of gall-stones. With a stone in the common bile duct, if the general condition permits, the duct should be opened and drained. Abscesses and foci of softening in the pancreas should be opened with a blunt instrument and drained.

44. **Traumatic Abscess in the Brain.**—Kempf reports a case in which he ascribes the fine outcome to a second operation in which he closed the gap in the skull with a bone plate taken from the boy's tibia. He gives an illustrated description of the technic.

46. **Operative Treatment of Joint Tuberculosis with Fistulas.** Wrzesniowski reviews his experience in forty-six cases of this kind in which he succeeded in curing 75 per cent. of the patients. The cure has been permanent to date in 55 per cent. of the total, although the cases were all severe processes in shoulder, elbow, knee or ankle with numerous fistulas and profuse suppuration. A wide transverse incision over the articulating line and a lengthwise incision permit the joint to be opened like a book. All the diseased tissues can thus be resected, with ample access. Tuberculosis does not like the daylight but flourishes vigorously in the dark, and the operation aims to remove all the conditions favoring this. He uses Mosetig's filling and Beck's paste as needed after the diseased tissues have been removed. The cleft is then packed with gauze and closed up again. The slit fistula openings are also packed with gauze. Twenty-six illustrations accompany the article.

Berliner klinische Wochenschrift

September 1, L, No. 35, pp. 1597-1644

54 Radio-Active Therapy in Internal Diseases. (Ueber Dosierung und Methodik der Anwendung radioaktiver Stoffe bei inneren Krankheiten und die erzielten Heilwirkungen.) F. Gudzent.
55 High-Frequency Currents in Therapeutics. (Zur Behandlung mit Hochfrequenzströmen.) A. and W. Laqueur.
56 Serodiagnosis of Pregnancy. (Der Abderhalden'sche Fermentnachweis im Serum von Schwangeren.) P. Schäfer and Evler.
57 *Practical Importance of the Relations between the Lymph-Nodes and Neighboring Body Cavities. M. Westenhöfer.
58 *Important Sources of Error in the Phenolsulphonephthalein Test of Kidney Functioning. M. Roth.
59 Plastic Operations on the Nose. F. Koch.
60 *Production of Radio-Activity from Non-Radio-Active Elements. M. Levy-Dorn.

57. **The Lymph-Nodes in Connection with the Body Cavities.**—Westenhöfer describes three anatomic specimens of anthracosis in which the lymph-nodes outside the chest showed signs of the anthracosis. In one, the lymph-nodes in the supraclavicular fossa on each side and in the right axilla contained the inhaled coal-dust; in the second, it showed in the lymph-

nodes below the diaphragm along the A. celiaca, and in the third specimen in the epigastric lymph-nodes at the cardia of the stomach. These findings are very significant as they show that the present conceptions of the connection between the lymph-nodes and the neighboring cavities of the body need revision. He states that he has found similar specimens in four pathologic museums, and he is convinced that cancer and tuberculosis may spread in the same way as the coal-dust was carried in these cases.

58. **Sources of Error in the Phenolsulphonephthalein Test of Renal Function.**—Roth states that conditions in women with genital disease or during pregnancy interfere with the test. He also says that if the urine is not all drawn, there may be enough residual urine to interfere with the findings. In measuring the urine, the residual urine must be considered. He found that different makes differed widely in the reactions observed. The lumbar muscles are better suited for the injection, he thinks, than the gluteal; with the latter erroneous findings are liable to result from defective absorption and also from a difference in the depth to which the needle is introduced.

60. **Radio-Activity Induced by Non-Radio-Active Elements.**—Levy-Dorn states that the spark between the electrodes of an induction coil—not in a vacuum—has considerable penetrating power. A photographic plate in three layers of black paper was affected by the rays from this spark, and the ordinary fluorescent screens were lighted up. These rays issue from the cathode. The rays rendered the objects receiving them radio-active for a time, up to two hours in his experiments. The photographic power was equivalent to that of 1/7 mg. radium when the spark was 10 cm. long, with a current of 3 milliamperes, a lead cathode, and twenty minutes' exposure.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

September 8, XVII, Nos. 1-3, pp. 1-296

61 *Prostatic Enlargement. M. Lissauer.
62 *Scorbutus in Young Children. (Moeller-Barlow'sche Krankheit.) C. Hart.
63 *Ulcerative Colitis. J. Kretschmer
64 *General Anesthesia with Internal Disease. (Grundlagen der Indikationsstellung für die Allgemeinnarkose bei gleichzeitig bestehenden inneren Erkrankungen.) M. v. Brunn.
65 *Connection between Disease of the Veins and the Female Genital Organs. R. T. Jaschke.
66 *Operative Treatment of Abscess in the Lung Not Due to Tuberculosis or Bronchiectasia. (Lungeneiterungen und ihre operative Behandlung.) K. Friedmann.
67 Acute Decubitus. W. Zipperling.
68 *Non-Traumatic Tetanus. D. Natonek.

61. **Prostatic Enlargement.**—Lissauer reviews 158 articles that have been published on the subject of hypertrophy of the prostate in recent years. The clinical picture with atrophy of the prostate seems to be practically the same as with hypertrophy. Malignant degeneration of the prostate may also induce the same set of symptoms; the frequency of cancer in the prostate is an additional argument in favor of operative treatment when there are symptoms from the prostatic changes. Albarran found malignancy in fourteen of 100 cases of hypertrophy of the prostate; Kümmel nine times in forty-one cases; Burckhardt eight times in 172, and Steiner twelve times in ninety-six cases. Salinger even goes so far as to assert that in every case of enlargement of the prostate in the elderly, the possibility of cancer should always be considered. The mortality of operations on the prostate was 7 per cent. in Freyer's 432 operations of the kind; 15 per cent. in Cahn's forty cases, and 6.6 per cent. in Steiner's experience with uncomplicated cases, while it was 32 per cent. in his infected material.

62. **Scorbutus in Young Children.**—Hart has found only fifty-one articles on this subject in recent years. He summarizes them and reports anatomic research and experiments on monkeys which have confirmed the identity of scorbutus in both infants and adults. The bone changes are identical but he warns that the diagnosis may be difficult when the classic symptoms are absent: bleeding of the gums, pains in movements and swelling of the joint ends of the bones, generally in the leg, while the joints themselves are spared. Differentiation is scarcely possible when this classic triad is not pronounced or scarcely developed. Exophthalmos may be the only symptom for a time of infantile scorbutus; Habs had a case of this kind which he was unable to explain until the eyelids became discolored, like a "black eye." Small linear hemorrhages in the upper lid were evident in Hart's experiments on monkeys.

The sudden appearance of the swelling of bones is often a clue to the diagnosis. Special emphasis is laid on the warning never to incise one of these swellings; they retrogress soon and do not need incising, while the danger of infecting the subperiosteal hematoma is great. The hematoma may be very large; in one of Hart's monkeys the entire skull was capped by a subperiosteal hematoma. Hematuria may be the early and only sign of a hemophilic tendency, and it may occur with or without actual nephritis. Finkelstein has reported a case of fatal hemorrhagic nephritis in two brothers fed exclusively on sterilized milk, and he explained the clinical picture as a manifestation of infantile scorbutus. The sensitiveness of the bones is an early sign of true scorbutus in young children; they draw up the legs on the abdomen at the lightest touch. The prompt subsidence of the fever when raw milk is given confirms anew the importance of dietetic treatment. Anatomic restitution is a very slow process, and cases are known of return of the symptoms of scorbutus. Finkelstein has reported recurrence after thirteen months of apparent recovery.

Prophylaxis is the main point, avoiding artificial and highly sterilized food for young infants from the very first. If they are absolutely necessary, the period of their use should be restricted to the minimum.

63. **Ulcerative Colitis.**—Kretschmer reviews fifty articles and states that some of the authors mention cases of gonorrheal, syphilitic and tuberculous origin or secondary involvement. Cobliner has reported a case in which the affection evidently had developed from the prolonged use of mercuric chlorid taken according to the therapeutic dosage. Ulcerative colitis is peculiarly tenacious, but there may be remissions with intervals of supposed health for weeks or months. The symptoms are about the same as with cancer of the colon, but direct visual inspection shows the numerous scattered small necrotic scabs, red granular mucosa and subepithelial hemorrhages characteristic of ulcerative colitis. With cancer at the sigmoid flexure, the mucosa generally looks pale. Local treatment is almost indispensable; for this hydrogen dioxid, potassium permanganate, silver nitrate or bismuth are commended as also starch enemas to be retained and hot gelatin enemas. In the majority of cases the ulcerative colitis is restricted to the sigmoid colon; this permits effectual direct local treatment with 2 or 5 per cent. silver nitrate solution or 5 or 10 per cent. zinc chlorid, after the parts have been thoroughly cleansed. Dry powders can also be applied or a strip of gauze dipped in 0.25 per cent. silver nitrate solution can be introduced and left to the next defecation, as Albu recommends. With skill and care these local measures do not distress the patient. Operative treatment is the last resort. To determine whether the colon has entirely healed, Boas examines the rinsing water passed from the artificial anus to the natural anus; if it is free from blood, pus and Charcot-Leyden crystals, the ulcerative process may be regarded as definitely cured and the artificial anus may be closed up.

64. **General Anesthesia with Internal Disease.**—Brunn lists 319 titles bearing on the necessity for extra care in general anesthesia, and discusses the views presented in them. He emphasizes anew the fact that ether promotes the secretion of saliva to such an extent that it is difficult to prevent aspiration of saliva and with it of infectious germs. The assumption that the secretion in the air passages is likewise increased in the same measure is not borne out by the facts observed; the morbidly profuse flow of saliva is the danger. This can be prevented by preparing the patient with a preliminary dose of atropin or other secretion-reducing drug, and by placing the head in such a position that mucus and

saliva will not accumulate in the throat ready to be aspirated into the air passages. The danger for the lungs from ether is thus not an inherent chemical property, and it merely requires technical skill to avoid it. The lung parenchyma may be injured by ether as by any general anesthetic, but no more so than with others. The experiences with local anesthetics have brought into prominence the fact that in many cases it is not the anesthetic used or the anesthesia which is responsible for postoperative pneumonia, but the location of the field of operation. If it is at a point where afterward the fear of pain or the mode of dressing interferes with the expansion of the lungs in breathing, this alone may entail postoperative pneumonia. This should be borne in mind in determining the indications for an operation. Especially dangerous in this respect are laparotomies and operations for hernia, cancer of the breast and goiter. Another danger emphasized is that during general anesthesia the bactericidal power of the lungs is materially reduced. The liver and kidneys are particularly susceptible to the toxic action of chloroform, and this should never be used when either is below par. Tardy chloroform fatalities present usually the picture of acute yellow atrophy of the liver, and the use of chloroform with known existing hepatitis is stigmatized by Brunn as actual malpractice.

65. **Connection Between Disease of the Veins and the Female Genital Organs.**—Among the points which Jaschke gleans from this review of 376 listed articles on this subject is the warning that in the operative treatment of gynecologic pyemia it is important to ligate the median iliac vein, as this is practically the sum of the anastomoses between the different systems of veins in the pelvis. The internal iliac vein, however, need not be ligated as this conveys merely the blood from the rectum and muscular floor of the pelvis. Six cases of gonorrheal phlebitis in women are on record. In treatment of phlebitis few realize the importance of keeping up the bed-rest long enough. The results of operative treatment of the thrombophlebitic form of puerperal fever do not seem very encouraging to date. The great difficulty is to know when to operate; any chill may be the last one and the decision may come too late, or the patient may recover without the operation when the odds seemed all against this. Klein has reported a case in which a patient with typical puerperal pyemia of the severest type and manifest thrombosed veins refused all operative measures and began to convalesce the sixteenth day, after fifteen rigors. Recovery is known even after 100 chills.

The outcome depends in large part on the virulence of the bacteria involved. For this reason operative measures seem most promising in the subacute and chronic cases of pyemia and of little use in the acute forms. The statistics give little idea of the value of ligation of veins for puerperal pyemia; Klein had three deaths in four cases; Latzko seventeen in twenty-seven operations; Bumm seven deaths in ten operations, and four other surgeons one out of two cases each.

In regard to the development of thrombi, all seem to agree now that mechanical causes interfering with the normal flow of blood but not restricting it entirely are the main factors involved. As in any stream, sediment drops down when the current grows more sluggish and at points where eddies form. The blood platelets drop out first and then the leukocytes; there is not a trace of fibrin in a recently formed thrombus but it develops as the current is arrested above. The veins most inclined to thrombosis are always the ones with naturally the most sluggish current; they feel first and most severely any let-up of the expulsive force of the heart. Any weakening of the muscular action of the heart is thus extremely important for the development of postoperative thrombosis. With incipient insufficiency of the heart muscle, prolonged general anesthesia is liable to injure the heart further to such an extent that the general circulation is much below par during the first few days afterward. By getting the patients up early Jaschke has succeeded in warding off thrombosis systematically during the last two years except in a single instance (a patient with an old cancer), while he has had venous thrombosis occur in a number of patients who were obliged to stay in bed longer.

Chlorosis and anemia naturally predispose to thrombosis on account of the sluggish circulation. An important but avoidable additional factor in thrombosis is any operative or other injury of the vessel walls; systematic avoidance of clamps and ligatures *en masse* and other measures liable to injure vessels ward off thrombosis. Myoma, carcinoma and large tumors with dilated veins predispose to thrombosis and hence general anesthesia should be avoided in such cases as far as possible, and the patients should leave the bed early. Jaschke advises getting the patient out of bed for a brief time even the day of the operation in case of anemia or cancer. He cites some Vienna statistics which show that since this has been systematically done there has been no thrombosis among 2,524 parturients getting up from the first to the third day, while there were four cases in 2,500 who did not get up till later. In 387 operative cases there were 0.5 per cent. with thrombosis among those got up early and 2 per cent. among 300 left in bed, including three cases of fatal embolism.

66. **Operative Treatment of Abscess in the Lung.**—Friedmann lists 121 articles published since 1900 and seven others which contain practically the total bibliography on operative treatment of suppurative processes in the lungs outside of tuberculosis and bronchiectasia. He draws a number of conclusions from study of this material. See abstract 117 below.

68. **Non-Traumatic Tetanus.**—Natonek reviews 310 articles, alphabetically listed, the last one cited being Willson's article in The Journal, 1902, xxxviii, 1147. Natonek classifies the cases according as the tetanus developed after trauma without visible external injury; after severe chilling, the "rheumatic form of tetanus" (he cites a number of cases in which the chilling just preceded the first symptoms of the tetanus and evidently cooperated in its development either by reducing the resistance to or enhancing the virulence of the germs); tetanus after spontaneous skin lesions, including freezing and burns; tetanus infection by way of the air passages, teeth, tonsils, alimentary canal or ear (three cases are reported in which infection from the ear was evident; the bacilli were cultivated from the ear discharge in one case); tetanus following operations or after subcutaneous injections or following vaccination. Ninety-three pages are devoted to this comprehensive review of what is known to date in regard to non-traumatic tetanus. Among the practical conclusions of the work is the advice to vaccinate always by superficial scarification and never shut out the air, so that if any tetanus germs are in the virus they will not find conditions propitious to their development.

Deutsche medizinische Wochenschrift, Berlin

August 28, XXXIX, No. 35, pp. 1665-1712

69 *Radical Operation for Primary Cancer of the Lung. J. Rotter.
70 *Nervous Excitability in Rachitis. M. Kassowitz.
71 *Typhoid Plus Measles. (Typhus und Masern.) H. Jastrowitz.
72 Excessive Elimination of Glucuronic Acid in Tetany in Infants. P. Freund.
73 *Respiratory Resonance in Lungs. (Ueber einen respiratorischen Perkussionsschallwechsel der Lunge und seine diagnostische Verwertung.) B. Molnar
74 Human Blood-Serum as Culture Medium for Diphtheria Bacilli. E. Martini.
75 Experimental Immunization with Cultures of Syphilis Spirochete. J. Schereschewsky.
76 *Attempt at Criminal Abortion in Absence of Pregnancy. E. Zweifel.
77 Transplantation [illegible] Gesichtspunkte auf dem [illegible] A. and E. Stoffel.
78 [illegible] Reaction. T. Hausmann.
79 Advantages of Combining Tuberculosis Dispensaries with the Inebriety Dispensaries. (Die Kombinierung der Auskunfts- und Fürsorgestellen für Lungenkranke mit Auskunfts- und Fürsorgestellen für Alkoholkranke.) P. Hesse.
80 Inheritability of Acquired Properties. (Verebung erworbener Eigenschaften.) G. Heimann.

September 4, No. 36, pp 1713-1768

81 *Cosmetic Dermatology. (Aerztliche Kosmetik der Haut.) E. Kromayer.
82 Phosphorus-Cod Liver Oil in Rachitis. M. Kassowitz.
83 Radiotherapy of Cancer. (Behandlung des Krebses mit Mesothorium und ihre Kombination mit anderen Verfahren.) A. Pinkuss.

84 *Partial Operations for Myoma. H. Freund.
85 Behavior of Duodenum Content with Catarrhal Jaundice and Duodenal Processes. J. Matko.
86 Transformation of Dermatitis. (Ueber Metamorphosen primärer Hauteffloreszenzen.) K. Herxheimer.
87 High Infant-Mortality in Hot Weather in the Spring. (Steigerungen der Säuglingssterblichkeit im Frühjahr.) H. Liefmann.
88 Nature of Physiologic Stimulus. P. Grably.
89 Causes of Pneumonia. (Ursachen der Lungenentzündung.) Kruse.
90 Pediatrics in Relation to Public Health and Economics. (Die sozialen Beziehungen und Aufgaben der Kinderheilkunde.) M. Thiemich.

69. **Operation for Cancer of the Lung.**—Rotter reports the case of a man of 51 with primary carcinoma in the right lung which he treated by resection of the entire lower lobe and part of the diaphragm. The first symptoms had been noted about a year before, oppression and pains. The operation lasted for more than two hours but the patient recovered after a second operation two months later at which the large defect left in the chest wall was closed with a pedunculated flap. A severe febrile sore throat with much catarrh in the air passages led to coughing which induced dyspnea and the patient died with symptoms of suffocation just before the end of the third month. The case is illustrated and compared with twenty-two cases on record of resection of part of the lung. In seventeen cases in which the outcome is known eleven patients survived. In this group the operation had been done for tuberculosis in two cases, for bronchiectasia in seven cases and for tumor in two. One of the six fatalities was due to sepsis from the necrotic stump of the hilus, one to emphysema, one to acute pneumothorax and two to vagus reflex action.

In his case the operation had been attempted and three ribs resected before the diagnosis of cancer was certain. The patient was then transferred to another institution where a differential atmospheric pressure apparatus was available; but the operation proper did not follow until nearly six weeks later.

70. **Excessive Nervous Excitability in Rachitis.**—Kassowitz states that in 370 cases of spasm in the glottis 125 of the children were under 6 months old and 260 not yet one year old. In the total 370 cases the fontanel was closed in only four of the infants, although not less than 110 were over a year old; 118 had no teeth although they were over six months old. He thinks that these findings indicate a tendency to rachitis and a connection between rachitis and spasmophilia. Another argument in favor of this is the connection between the evidences of spasmophilia and the season, paralleling in every respect the seasonal recurrence of rachitis in the months of the year in which infants are confined in the house. (He has previously called attention to this coincidence, suggesting that rachitis may be a manifestation of poisoning from vitiated air.) An additional argument is the remarkably favorable action of the specific treatment for rachitis in the nervous disturbances of spasmophilia. The benefit from phosphorus is convincing, he declares.

71. **Typhoid plus Measles.**—The child in question had not only typhoid and measles but pneumonia, and yet the combined syndrome was not serious. Jastrowitz reports three other cases of atypical typhoid; if there had been a complicating infectious disease the typhoid would have escaped recognition entirely. He has been able to find only three cases on record of typhoid plus measles and four of measles plus paratyphoid. In his first case the assumption was that measles was occurring in a typhoid bacilli carrier, but this was disproved by the persistence of the fever after the measles eruption had subsided and by the diarrhea a week after the measles, by the roseola and by the disappearance of the typhoid bacilli from the stools during convalescence. The other members of the family had typhoid bacilli in the stools but none had had any symptoms from the typhoid infection except that the spleen was unduly large in one. He believes that mild typhoid infections in children are an important factor in the spread of the disease, and urges isolation and free hospital treatment even in the mildest cases when strict isolation in the home is not possible.

73. **Varying Resonance in the Lung as a Sign of Tuberculosis.**—Molnar refers to the familiar fact that the percussion sounds in the lungs vary in intensity with shallow and deep respiration. In health, with weak percussion and deep inspiration the percussion grows fainter; with strong percussion and deep inspiration it grows louder. Over a tuberculous process this change in the sound, he says, is reversed: the sound grows louder with faint percussion during deep inspiration when there is an incipient tuberculous process in the apex below. The contrast with the opposite change noted over the sound apex is striking. He theorizes to explain the causes for the changes.

76. **Attempts at Criminal Abortion in the Absence of Pregnancy.**—Zweifel comments on the peculiar gravity of these cases as the women keep repeating their efforts to bring on abortion when no results follow the first attempt.

81. **Medical Cosmetic Procedures.**—Kromayer discusses in turn the treatment of horny processes, vascular anomalies, affections of the sebaceous glands, disfiguring pigmentation or tumors and disease of the hair. He says of the subeczematous condition of the skin, to which too frequent scrubbing of the hands predisposes, that the roughened skin is suffering from lack of both water and fat. While the skin is still wet, it should be rubbed with a salve to prevent the loss of the water; to wait before applying the salve or cold cream until the hand is dry defeats the purpose. He says of corns and callous processes that excision does little good as the connective tissue beneath has become sclerotic and recurrence inevitably follows. Radiotherapy, on the other hand, influences the connective tissue and restores normal conditions in it and the cure is complete and permanent. Radiotherapy is also almost invariably successful in curing disfiguring proliferation of the tissues of the nose, potato nose, rhinophyma. If there is considerable new formation of blood-vessels, compression and exposure to the blue light of the quartz lamp will correct conditions. It is difficult, however, to apply compression effectually to the nose, and he describes his method of obliterating the prominent vessels with the electric needle (*Spitzbrenner*), heated red hot and applied only for the fraction of a second. A combination of different forms of radiotherapy is useful for nevi, but even at the best the results are far from perfect. The skin never acquires a normal aspect and the reports in the literature, he thinks, are drawn too favorably. As a rule the patients are generally better pleased with the outcome than the physician. The patients are satisfied to find that on account of the partial shriveling of the vessels in the nevus it does not become so congested and conspicuous on exposure to cold, etc., as previously.

84. **Partial Operations for Uterine Myoma.**—Freund cuts out the myoma with a wedge of the uterine walls, including the entire fundus and body of the uterus. This retains the adnexa and a functionally capable uterus, while it permits thorough inspection of the interior of the uterus. He states that it is astonishing how soon the uterus regains normal conditions as to size, shape and consistency.

Deutsche Zeitschrift für Chirurgie, Leipsic

August, CXXIII, Nos. 5-6, pp. 417-618

91 *Traumatic Epilepsy and Its Operative Treatment. K. Matthiae.
92 *Operative Treatment of Traumatic Paralysis of Peripheral Nerves. H. Luxembourg.
93 *Congenital Presacral Tumors. W. Parin.
94 *Injury of Crucial Ligaments of the Knee. (Ueber die seltliche Abreissung der Menisken.) Blecher.

91. **Traumatic Epilepsy.**—Matthiae devotes 136 pages to the summaries of 326 cases of operative treatment of traumatic epilepsy, compiled from the literature, giving details of the operation and the findings, and followed by comparison and discussion of the final outcome. He adds two more cases to the list from his own experience. In all but sixty cases the epilepsy was of the jacksonian type. The list is arranged alphabetically by the surgeons' names and the total material is tabulated under various headings. One point thus brought out is that some surgeons, in all their cases, were so much

more successful than others, possibly from superior technic. The after-care seems to be supremely important. Some gave opium or bromid afterward and think it helped; this certainly seemed to be the case in some instances. Other patients seemed to do equally well without it. Absolute abstention from all physical or mental effort for a time afterward seems indispensable. Alcohol exerts a particularly noxious influence on persons inclined to epilepsy, and there can be no question that the bad outcome in some of the cases was due to too free use of spirits afterward. This was particularly evident in one of Braun's cases in which after several years free from the jacksonian epilepsy after the operation, the attacks returned when the young man drank much liquor. He continued to drink and finally developed confirmed epilepsy.

The data presented show that the length of the interval between the accident and the outbreak of the epilepsy does not seem to affect the prognosis. The failures in some cases are possibly explained by an inherited taint. The largest percentage of cures was in patients between 20 and 30: 11 per cent. have been cured for over five years; 6.7 per cent. of those under 10; 6.3 per cent. of those between 10 and 20, and 7.5 and 7 per cent. between 30 and 40, and 40 and 50. In the total 326 cases there were 19 deaths (18.1 per cent.), including three patients with genuine epilepsy. The condition was aggravated by the operation in one case of jacksonian epilepsy and two of genuine epilepsy. No effect was apparent in forty-two cases of jacksonian epilepsy and in seventeen of genuine epilepsy. The twenty-four absolute cures for over five years include two with genuine epilepsy between 20 and 30 and one between 40 and 50. The epilepsy was of two years' standing in eleven of these cases and over ten years in four; nineteen years in Schede's case.

The cured cases are tabulated separately and the point is emphasized that in all but one in this group the local findings amply explained the trouble. This was the case also in the two personal cases reported. The patients were men about 40 with epileptic seizures coming on a few weeks or a year after fracture of the skull. Neither has had any return of the seizures during the six or eight years to date. In conclusion Matthiae reiterates anew the warning that a brain once inclined to epilepsy cannot stand alcohol. Any injury of the skull seems to reduce permanently the tolerance for alcohol. Graf found a tendency to headache in thirty-four persons who had had fracture of the base of the skull and in a number the headache came on regularly after taking alcohol, even the smallest amount. Graf's group is particularly instructive as only three in the group had a claim for disability insurance.

92. Operative Treatment of Traumatic Peripheral Paralysis.—Luxembourg reports seven cases with the ultimate outcome, one in a sixteen months infant; two patients were boys of 14 and 18; one was a girl of 8, and the rest were men under 31. The various operations devised to meet different conditions are described in detail. The outcome was surprisingly good in all but one case. In this operative treatment was not applied until seven years after the nerve had been severed in an operation on a tuberculous focus.

93. Presacral Tumors.—Parin describes a case of congenital tumor developing inward from the sacrum, a teratoma, and compares it with fifteen recorded in the first ten years of the century. His patient was a young woman who since the age of 10 had had suppurating fistulas in the sacral region. A teratoma as large as a man's fist was removed at two sittings from between the sacrum and rectum. In addition Parin summarizes six other cases of tumors in the sacrum-coccyx region in which malignant disease developed. This is so rare, however, that he advises waiting before removing a congenital tumor in this region until the patient has grown stronger and more resistant. Only one fatality is known in the last thirty-five years from removal of a presacral tumor later than early infancy.

94. Internal Injury of the Knee.—Blecher describes three cases of injury of the knee after which the patient held his knee flexed and immovable and the space between the articulating surfaces was extremely tender. This characteristic picture keeping up for two weeks and more is encountered when the semilunar cartilage has been torn off along the side and the torn off cartilage then lies like a foreign body between the articulating surfaces. If torn off so completely that it slips up between the condyles, the trouble is intermittent, incarceration occurring only when the cartilage slips down and gets nipped in the joint. If conditions do not right themselves under eight or ten days of ordinary treatment for a sprained knee, then the knee should be opened without delay and the cartilage reduced and held in place with a stitch or two unless it shows signs of severe injury, in which case it should be removed. He aims to retain it whenever possible.

Medizinische Klinik, Berlin

August 31, IX, No. 35, pp. 1401-1440 and Supplement

95 *Surgery of the Peripheral Nerves. A. Stoffel.
96 Dietetics in Nephritis. T. Janowski.
97 Herpes with Diphtheria. F. Reiche.
98 Duodenal Ulcer. (Zur Statistik des peptischen Duodenalgeschwürs.) E. Melchior.
99 Rheumatism. (Wandlungen in den Ansichten über Rheumatismus.) B. Bosanyi.
100 Therapeutic Venous Congestion in Treatment of Cardiovascular Disease. (Die Phlebostase als physikalisches Heilmittel bei Kreislaufstörungen.) S. Lilienstein.
101 Treatment of Gout at Vichy. Chabrol.
102 Massage of the Nerves in Treatment of Headache. A. Wiszwianski.
103 The Gall-Bladder and the Stomach. (Gallenblase und Magenmechanismus.) H. Hohlweg.
104 Vital Staining. (Einfluss physikalischer Eingriffe auf die Erscheinungen der vitalen Färbung.) Z. v. Dalmady.
105 Radiology of the Stomach. II. (Neuere Ergebnisse der Radiologie des Magens.) Hürter.

95. Progress in Surgery of Peripheral Nerves.—The Journal has previously mentioned Stoffel's work in this line, 1913, lx, 793. He has confirmed the fact that a nerve is merely a bundle of separate motor and sensory fibers, and that it is possible to trace in a transverse section of the nerve the various fiber-tracts which pass to given muscles. At a touch with a needle electrode to the tract, the muscle contracts. He has been the explorer of the topography of the transverse section of the nerves, and has applied the points thus learned in very successful treatment of spastic paralysis, weakening the innervation of the paralyzed muscles and reinforcing the strength of the antagonists. The groups of muscle involved in the spastic paralysis are released from their bondage by partial resection of the corresponding motor nerve tracts. He had performed 172 operations on peripheral nerves up to June, 1913.

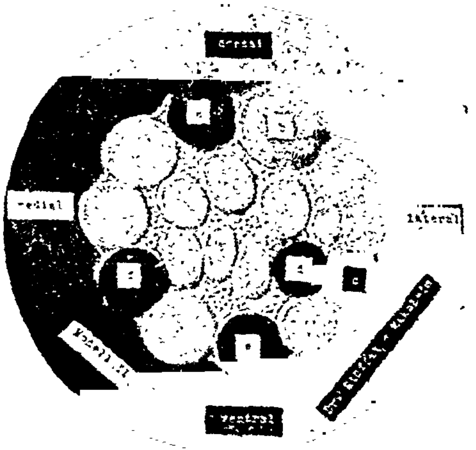


DIAGRAM OF PROXIMAL STUMP OF TIBIAL NERVE IN LOWER HALF OF THIGH

a = the tract forming the communicans tibialis.
b = the tract for the gastrocnemius muscle and the dorsal part of the soleus.
c = the tract for the ventral part of the soleus.
d = the tract for the flexor longus hallucis.
e = the tract for the tibialis posticus.
f = the tract for the flexor longus digitorum.

The rest of the cross-section is made up mostly of the motor tracts for the short flexor muscles and the tracts of the sensory plantar nerves.

He applies the same principle in treatment of sciatica, sifting out the sensory from the motor fibers and severing those which innervate the points where the pain is felt. He refuses to accept a sciatic nerve, saying that there is only a skein of nerve fibers running along the back of the leg to convey motor and sensory impulses. The general picture of sciatica can be resolved into a number of sharply defined clinical pictures which we are accustomed to group and regard as a single morbid entity and call sciatica. He has operated on this principle in a number of cases with unfailing success; all of the patients are permanently cured. In the first case of the kind, after four years of intolerable sciatica there has been no return of the pain during the year since the operation and the pronounced scoliosis has entirely retrogressed.

He gives the patient a blue pencil and asks him to mark on his leg the points where he experiences pain. The drawing thus obtained could not be a more perfect representation of the course of a given sensory nerve if it had been drawn by a skilled anatomist. Stoffel then studies the attitudes of the patient, the positions assumed in standing, walking, sitting and reclining, to learn which positions are assumed to escape the pains. Each of the sensory tracts has its own mechanical conditions, knowledge of which is important for identification of the tract involved. When the nerve tract involved is thus located, he resects it for about 15 cm. and rolls up each stump in turn on forceps until it tears. The sciatica is thus cured while all the motor and all the other sensory tracts are left unmolested.

In the *Munchen. med. Wchnschr.*, June 24, 1913, Stoffel described more in detail his technic for treatment of sciatica (p. 1366). The accompanying illustration is taken from that article. He seeks out the nerve tracts involved by testing the various fibers with a needle electrode, the cathode of a galvanic apparatus, lifting the fibers only by the neurilemma with great care not to injure them, spreading the tracts by working into the delicate connective tissue separating the different tracts of fibers and thus isolating the one involved.

Münchener medizinische Wochenschrift

September 2, LX, No. 35, pp. 1921-1976

106 *Spirochetes in the Brain in General Paresis. (Ueber den Nachweis der Spirochäten des Paralytikergehirns im Tierexperiment.) H. Berger.

107 Biologic Cerebrospinal Fluid Test for Cancer. (Ueber Komplementbindungsreaktion mit Liquor cerebrospinalis bei Karzinom.) F. v. Dungern and Halpern.

108 Serodiagnosis of Pregnancy. (Weiterer Beitrag zur Kenntnis der Spezifität der Abwehrfermente. Das Verhalten des Blutserums schwangere Kaninchen gegenüber verschiedenen Organen.) E. Abderhalden and E. Schiff.

109 *Laryngeal Tuberculosis Does Not Contra-Indicate Compressive Treatment of Pulmonary Tuberculosis. Zink.

110 *The Pauses in Normal Respiration. (Die Zäsur im hörbaren Atmen.) R. Geigel.

111 *Serotherapy in Sepsis. (Behandlung schwerster Sepsis mit intravenöser Infusion grösserer Mengen menschlichen Normalserums nach vorausgegangenem Aderlass.) H. Bennecke.

112 Operation for Inguinal Hernia. (Zur Technik der Radikaloperation von Leistenhernien.) P. Kleinschmidt.

113 Efficiency of Autolysates in Treatment of Cancer. (Zur Behandlung maligner Geschwülste.) H. Lunckenbein.

114 Arsenic Springs. (Neuere klinische Erfahrungen über die Wirksamkeit der Dürkheimer Maxquelle.) C. Herrligkoffer and J. Lipp.

115 Obesity Reduced by Electricity. (Das elektrische Entfettungsverfahren mittels des "Degrassator" nach Dr. Schnee.) A. Schnee. See abstract 83, p. 1333.

116 Serodiagnosis of Pregnancy. (Zur Frage von der Organspezifität der Schwangerschaftsfermente gegenüber Plazenta.) G. Plotkin.

117 *Recent Progress in Operative Treatment of Pulmonary Disease. F. Sauerbruch.

106. **Experimental Syphilitic Lesions Induced by Spirochetes from Brains of Paralytics.**—Berger inoculated twenty rabbits with material from the brains of twenty patients with progressive paralysis. He obtained the material in the form of minute cylinders cut out with a drill and cannula under light general anesthesia. The cylinders were transferred to warm saline and then cut up with scissors, ground in a mortar and injected into the left testicle of the rabbit. The brain was punctured in both frontal lobes and only one of the patients seemed to experience any ill effects; some with a tendency to hydrocephalus were directly benefited by the procedure although the benefit was but transient. In the one unfortunate case, the puncture caused bleeding from a vessel in the cortex and the patient died five days later. He was a man of 51 with advanced paralysis of over two years' standing, and it was learned afterward that he had a history of hemophilia. The inoculation gave positive results in three of the rabbits, confirming the statements that the brain in progressive paralysis shelters living spirochetes, capable of inducing actual—although not very severe—syphilitic lesions in animals. Berger quotes in conclusion Hippocrates' words in regard to the necessity for venturing to a certain extent in the treatment of hitherto incurable diseases as the patients have nothing to lose, while if success should be realized they could be cured.

109. **Laryngeal Tuberculosis No Contra-Indication to Compressive Treatment of the Lungs.**—Zink reports five cases to confirm his assertion that tuberculous laryngitis not only does not contra-indicate therapeutic pneumothorax, but that the latter has a marked beneficial influence on the throat affection. Among his seventy-six patients treated with the compressive pneumothorax, twelve had laryngeal tuberculosis of greater or less severity. The mild forms promptly healed without other measures. Under application of powders or mentholated oil and strict enforcement of the rule of silence, even the four severest cases healed completely. In only one patient did the process resist this treatment, and in this case there were severe intestinal tuberculous lesions. Zink ascribes the benefit to the exclusion of all the factors which cooperate to maintain the laryngeal process, the fever, the progressive course of the pulmonary process and the mechanical injury from coughing and from expectorating and the passage of virulent bacilli in the sputum—all of these factors drop out after the lung has been immobilized by the therapeutic pneumothorax. As the general health improves, the larynx shares in the general uplift. Still another element that must not be overlooked is the fact that the toxins generated in the lungs are not swept throughout the body as before but are retained in the focus; this gives the body a chance to recuperate and augment its resisting powers. Zink regards this transformation of the clinical picture after the artificial pneumothorax as the most important factor in the healing of the lesions. Even ulcerative tuberculous processes in the larynx do not contra-indicate the compressive therapy, but when the process has spread throughout the entire region, involving the epiglottis in the perichondritic process, with edematous swelling and ulceration, relief comes too late at this advanced stage.

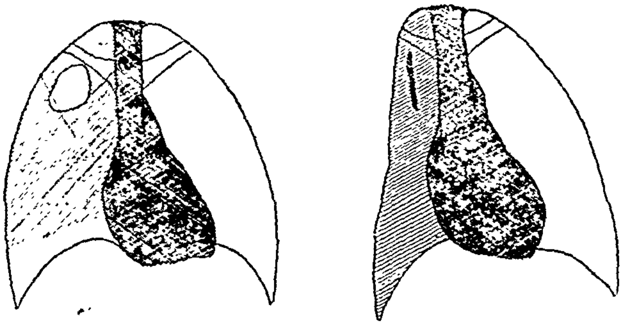
110. **Interval between Acts of Normal Respiration.**—Geigel regards the interval at the end of audible expiration, before audible inspiration begins, as a valuable sign as to whether the respiration is really of the normal type or not. It is often impossible to count the respiration-rate, but it is generally easy to note whether there is this normal pause between expiration and inspiration. There is no interval in febrile conditions; the acts of respiration succeed each other without a pause, and improvement of conditions is often revealed first by the reappearance of the brief interval between the acts of respiration. It can be easily detected even in the dark, and is a valuable aid in the prognosis. Geigel found the interval marked when respiration was 26, 30 or 32 in sick infants, but when the respiration-rate became 42 or 50 there was no interval to be detected. He has coined the term *zäsur* to express this normal interval between the acts of audible respiration.

111. **Serotherapy in Sepsis.**—Bennecke announces that a remarkable turn for the better in five cases of extremely severe sepsis followed intravenous infusion of 210 or 480 c.c. of normal human serum. This occurred with the recovery of the patients in three out of the five cases and transient improvement was obtained in one other case. The infusion had been preceded by venesection in each instance. The patients were between 6 and 20. Necropsy in the fatal cases failed to disclose any ill effects from the procedure.

117. **Surgery of the Lungs.**—Sauerbruch gives the history of operative treatment of diseased lungs, and describes his own experiences in this line with illustrations of his large cabinet for negative atmospheric pressure and his adjustable retractor for enlarging the space between the ribs. He illustrates also other points in the technic as well as concrete examples of its application. He has operated in five cases in which both chest and abdomen were severely injured by crushing from the wheels of a vehicle or between cars. All the patients were saved by the operation. He opened the chest by an incision in the seventh intercostal space, attended to the injury of the lungs and then palpated the abdominal cavity through the diaphragm. The bulging upward of the diaphragm revealed at once hemorrhage below. He cut the diaphragm perpendicular to the direction of the fibers, thus opening up the upper abdomen. The oversight thus afforded is so extensive that removal of the spleen, for instance, by this route is simpler and easier than with a laparotomy.

In case of abscess in the lung, evacuation under differential pressure is a simple and harmless matter. He sutures the lung to the opening in the chest wall over the focus and then opens up the abscess with the actual cautery, sponges out the contents and drains. Very rarely does a fistula develop. Operative treatment has a record of over 70 per cent. of cures (Garré) while Villière was able to find records of only 25 or 20 per cent. cures under internal measures.

Sauerbruch has now a record of 113 cases in which he resected ribs enough to permit the wall of the chest to fall in and thus compress the lung beneath. In seventy-seven of the cases the trouble was of tuberculous origin. Two patients succumbed to the effect of the operation and eleven died from the progress of their tuberculosis months and years later. This group includes five in which the abscess cavity had perforated and there was already severe mixed infection. Of the others, seventeen are practically cured; nineteen much improved, and only four failed to be benefited by the operation, while in three cases the affection seemed to be aggravated. In the group of much improved patients there are six or eight who seem to be on the road to complete recovery. The illustration is drawn from skiagrams of a patient now cured. Note the compression of the lung realized by resection of the bony framework of that side of the chest, and the obliteration of the cavity as the lung is squeezed into smaller compass.


Obliteration of cavity in lung by extrapleural thoracoplastic operation. Patient now cured.

The lesions of bronchiectasia seem to be the least amenable to surgical treatment, but his experience with twenty-five cases showed that although a complete cure was not obtained, yet the great improvement in the general health and reduction in the amount of sputum were very gratifying. On account of the hopelessness of merely internal measures, he thinks that operative treatment should be applied more generally. If it can be done in the earlier stage, the results will certainly improve to correspond.

Sauerbruch thinks that operative treatment of pulmonary tuberculosis has an important future. Progress must be along the lines of improved indications rather than further perfecting of the technic. The compression of the lung and obliteration of the cavity are of importance not only for the patient himself, but as reducing the danger for others. In eight cases Sauerbruch injected a filling when the thoracoplastic operation could not be rendered complete; the patients bore it well and although there were a few complications, yet the end-result was good in all. He emphasizes that these compressive operations on the lungs promise benefit only when the lung process has already showed a tendency to shrivel. The retraction of the lung after the ribs have been resected reduces it remarkably in size, an actual collapse obliterating all the cavities, and thus applying to the lung the principles of rest which are found effectual in treatment of tuberculous processes in bones and joints. The lymph does not circulate through the lung, and there is production of connective tissue to a surprising extent. Again and again he has witnessed the amount of sputum decline from 200 or 400 c.c. a day until finally there is no further expectoration. The fever frequently subsides at once after the operation. In the favorable cases the improvement continues a progressive course to a complete cure. He gives illustrations of the technic with which he resects, from the back, the ribs from the first to the eleventh, operating at one or two sittings. It is sometimes possible to resect the ribs merely directly over the cavity; Sauerbruch recommends for this a preceding therapeutic pneumothorax to compress the lower lobe when the cavity is in the upper. By selection of cases, by operating under local anesthesia, and with great attention to the after-care, he says that we can recommend this extra-pleural thoracoplastic method of treating tuberculous cavities in the lungs as a harmless intervention. Most of his patients were between 16 and 25, but others were up to 40 years old.

Wiener klinische Wochenschrift, Vienna

September 4, XXVI, No. 36, pp. 1413-1448

118 Sugar Content of the Blood. (Der Blutzuckergehalt unter normalen und pathologischen Verhältnissen.) B. Purjesz.
119 Subcutaneous Tuberculous Lesions. (Zur Kenntnis der subkutanen Sarkoide—Darier-Roussy.) R. Volk.
120 Arteriovenous Anastomosis with Beginning Gangrene. C. Goodman (New York).
121 *Electric Accidents. (Zur Kenntnis der Unfälle durch Elektrizität.) F. Fischl.

121. **Electric Accidents.**—Fischl reports a case in which a young electrician dropped to the ground unconscious as a short-circuited current of 5,000 volts passed from one hand to the other. Although the heart was on the route of the current, yet little injury followed; after brief bradycardia there was arhythmia but the pulse returned to normal the second day under digitalis, and there was not even abnormally high blood-pressure the morning after the accident. The electric burn of the hand was comparatively insignificant, a grayish line running through it resembling an old knife cut well on the way to healing. Consciousness returned after half an hour and the patient complained of headache and great sensitiveness to light, even with the eyes shut. There were also much depression, weakness and somnolency, with paralytic conditions in the muscles, but recovery was soon complete as the burns on the legs healed. Professional electricians do not seem to have to contend with the psychic shock usual under other conditions.

Zentralblatt für Chirurgie, Leipsic

September 6, XL, No. 36, pp. 1393-1440

122 Technic for Closing the Pleural Cavity after Operations Inside the Chest. (Verschluss der Pleurahöhle nach intrathorakalen Eingriffen.) L. Dreyer.
123 Treatment of Syndactylia. G. Lerda.

Zentralblatt für Gynäkologie, Leipsic

September 6, XXXVII, No. 36, pp. 1317-1348

124 *Primary Carcinoma of Fallopian Tube. J. Fonyo.

124. **Primary Tubal Cancer.**—Fonyo states that only 120 cases of cancer of the Fallopian tubes have been reported since 1886 in German, French and English literature, but he has encountered at Budapest two additional cases which he here describes in detail. He thinks that primary tubal cancer is more frequent than the literature would suggest. Comparatively few tubes removed for various reasons are examined for cancer; if this were done more frequently the number of cases of tubal cancer would certainly increase. His two patients

were in the fifties, and both had passed through three pregnancies. He compares the findings with those in cases on record, and states that the possibility of cancer is an argument for panhysterectomy in all dubious cases of disease in the uterine adnexa, *removing at the same time the regional* lymph-nodes. The bad outcome in the operative cases to date is due mainly to the lack of thoroughness in the operation and to the late stage at which the diagnosis was made.

Zentralblatt für innere Medizin, Leipsic

September 6, XXXIV, No. 36, pp. 905-928

125 Heart-Block from Irritation of the Vagus. (Fall von Ueberleitungsstörung, bedingt durch Vagusreiz.) H. v. Hoesslin.

Policlinico, Rome

September, XX, Surgical Section No. 9, pp. 385-432

126 *Technic for Obliterating a Vessel. (Un processo per la produzione della stenosi vasale.) I. Scalone.
127 Anomalies in Development of Lower Bowel. (Anormale evoluzione del peritoneo, dell'ansa ombelicale primitiva e del mesentere comune.) A. Comolli.
128 *Suture of the Heart. (Sulle ferite del cuore.) N. Leotta. Commenced in No. 7.

126. **Method for Reducing Lumen of Blood-Vessel.**—Scalone runs a curved needle through the superficial layers of one side of the wall of the vessel, then introduces it again at a distance beyond. By drawing up the ends of the thread, the wall between the two stitches is forced inward and the lumen is obstructed to that amount. By taking the stitches farther apart, the fold thus forced inward can be made as large as desired. If the suture thread pulls out, this is readily remedied by taking another stitch beyond. The special advantage of the technic is that the maneuver can be done without first shutting off the blood in the vessel, and the vessel does not have to be isolated. The technic can be applied just as well whether the vessel is detached from its bed or not. It is harmless, and the amount of stenosis can be graduated as desired. The same procedure can be repeated above and below as needed to operate on as long a segment of the vessel as desired. The obstruction is maintained by the natural tissues without extraneous substances in contact with the interior of the vessel.

128. **Operative Treatment of Wounds of the Heart.**—Leotta gives statistics which show recovery in 44.91 per cent. of 236 cases in which the heart was sutured. When the left ventricle was the seat of the injury, 46.29 per cent. of the 108 patients recovered; 39.28 per cent. of the eighty-four patients with the wound in the right ventricle; 77.77 per cent. of the nine with the wound in the left auricle, and 62.5 per cent. in the right auricle. One patient with both left auricle and ventricle injured died, and one of the two with both right auricle and ventricle injured. In thirty-five of the total 236 cases, the injury had been done with a firearm. The proportions of recovery with this were about the same as above except that both of the two patients recovered who had both the right ventricle and auricle or the left ventricle and auricle injured.

Riforma Medica, Naples

August 30, XXIX, No. 35, pp. 953-980

129 Thorium X in Disease of the Blood. (Sull-azione del torio X nelle malattie del sangue.) P. Sisto.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 9, LVIII, No. 6, pp. 369-448

130 *Diffuse Changes in the Brain with Cirrhosis of the Liver. (Over diffuse hersenveranderingen in een geval van levercirrhose.) R. de J. de Jong and W. Van Woerkom.
131 The Liver Cells with Metabolic Acidosis. (Onderzoek over levercellen bij stofwisselings-acidose.) P. G. J. Duker.

August 16, No. 7, pp. 449-528

132 *Neurosis of the Stomach or Duodenal Ulcer? (Maagneurose of ulcus duodeni.) M. A. de Kock.
133 *Anencephaly. B. Brouwer.

130. **Changes in the Brain with Cirrhosis of the Liver.**—In the case described with five illustrations an increased amount of glia fibers were found in the cortex and also increased numbers of glia cells. No signs of acute inflammation were detected. Very little seems to have been done along this line of neurologic examination of the brain in disease of the liver, and yet this may prove a rich field for investigation.

132. **Gastric Neurosis or Duodenal Ulcer?**—De Kock says that the rarity of cases of perforated duodenal ulcer in the Netherlands is due to the general ignorance of the existence of the chronic duodenal ulcer. No diagnosis of it is made. The Netherlands medical profession is still influenced by the German conception that the accompanying hyperacidity and other symptoms are due to a nervous affection of the stomach, and that there is no need to seek for an organic lesion. The Americans and the English, he states, have been pioneers in the recognition of ulceration in the duodenum, and de Kock hopes that their views may speedily be accepted in his country, and that the profession will not wait until the proper appreciation of duodenal ulcer has had to filter to them through German channels first.

133. **Anencephaly.**—Brouwer's illustrated article contains a histologic description of the central nervous tissues in a typical anencephalus. Also a carefully prepared outline for physiologic examination of living monsters of this kind; he specifies twenty-eight points to be recorded, including the behavior of the various reflexes and the response to the Wassermann test. Brouwer adds further a number of interesting physiologic deductions from the data presented, especially in regard to the elementary functions of the nerves. He regards the movements of an anencephalus as mostly of the nature of reflex movements; in his case the brain had evidently failed to develop properly on account of some local inflammatory process affecting the fetus.

Brazil-Medico, Rio de Janeiro

August 15, XXVII, No. 31, pp. 321-332

134 Transmission of Brazilian Trypanosomiasis by Insect Bites. (Molestia de "Carlos Chagas." Transmissão do T. Cruzi pela picada do T. megista.) M. Torres.
135 Reflex Movements of the Big Toe. (Sobre o phenomeno da extensão do grande dedo do pe associado aos esforços musculares.) O. de Souza and A. de Castro.

Semana Medica, Buenos Aires

July 17, XX, No. 29, pp. 117-172

136 Concentration of the Blood in Heart and Kidney Disease. (*Dilucion y concentracion sanguinea en las cardio- y nefropatias.*) C. B. Udaondo.

July 24, No. 30, pp. 173-228

137 Heated Ether for General Anesthetization. (Termo eterizacion General por el eter.) V. Delfino.
138 Painless Delivery. (La anesthesia en el parto normal.) J. A. Beruti.
139 The Campaign against Opium. (La lucha contra el opio.) V. Delfino.
140 Autotomy as Reflex or Psychic Act. V. Delfino.
141 Intoxication from Veronal; Two Cases. H. J. Rossello.

August 7, No. 32, pp. 289-344

142 *Epidemic Cerebrospinal Meningitis. J. Penna. Commenced in No. 31.
143 Relics of Three Ruptured Tubal Pregnancies of Different Dates Found at Laparotomy. A. Chueco and M. Lombardo.
144 Trachoma. (Tratamiento quirurgico del Trachoma. Procedimiento Helsrath-Kuhnt.) A. Gowland.

142. **Epidemic Meningitis.**—Penna seems to be quite successful with his method of treating epidemic cerebrospinal meningitis. He generally applies wet cups along the spine, with ice to the head, and purges with calomel sometimes giving also 1 gm. of potassium iodid and mercurial inunctions, as in syphilis. He applies lumbar puncture at need, and antimeningococcus serotherapy. His mortality was 32 per cent. in 200 cases of meningitis in which he injected the antimeningococcus serum into the spinal canal by lumbar puncture. Of late, he has supplemented this by intravenous injection of some of the 100 c.c. of the serum, *his maximum dose.* He reports a few cases in which the entire dose was injected into a vein, apparently attenuating the disease and hastening recovery. A second injection, twenty-four hours later, was sometimes given with a little smaller dose. He lays great stress also on hygiene of the mouth in the care of meningitis patients.

Hospitalstidende, Copenhagen

September 3, LVI, No. 36, pp. 1029-1052

145 Influence of Temperature on Wassermann Reaction. (Temperaturens Indflydelse paa Komplementbindungen i Wassermann's Reaktion.) O. Thomsen and H. Boas.
146 Experiences with Noguchi's Luetin Reaction. (Undersøgelser over Noguchi's Luetinreaktion.) H. Boas and C. Ditlevsen. Commenced in No. 35.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXI, NO. 16 CHICAGO, ILLINOIS OCTOBER 18, 1913

RADIOGRAPHIC STUDIES OF THE GASTRO-INTESTINAL TRACT IN INFANTS *

HENRY DWIGHT CHAPIN, M.D.
NEW YORK

The difference between a dissection of the body in studying various viscera and organs and the modern Roentgen examination of the same parts will often show quite a field of divergence. The great advantage of the latter method is, of course, that it is dealing with the living and functioning body. Not only are the positions and relations of the organs liable to be somewhat different in life and death, but the mobility and motility of the viscera can be studied by the new method.

This has a practical side, as we are learning that some conclusions drawn from pure anatomy cannot hold entirely good in treating the living body. This is especially true at the beginning of life, when function and form may show wide variations. It will doubtless be necessary for many studies to be made by different observers, with a subsequent comparing of results, before generalizations can safely be made in reference to the limits of location, mobility and motility of the various viscera studied by means of the Roentgen ray. It opens up a promising field of research, however, and we have learned enough already to change our beliefs somewhat as to the form and functioning of the different parts of the gastro-intestinal tract.

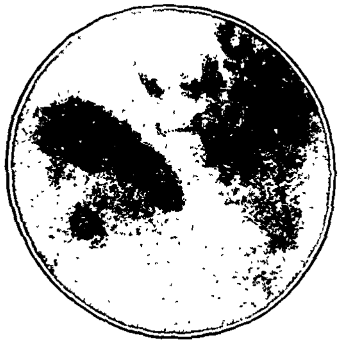


Fig. 1.—Fifty-five minutes. Stomach horizontal, as observed by the recent studies of Pisek and Le-Wald. Greater portion of barium in the stomach; considerable amount in the small intestines.

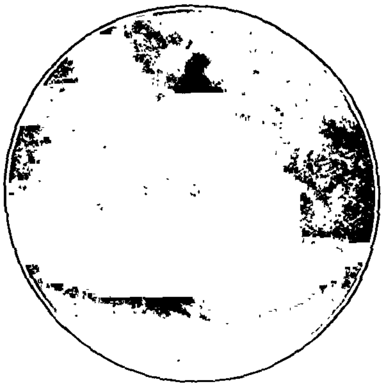


Fig. 3.—One hour and fifty minutes. Small amount of barium in the stomach. The rest of the barium in the small intestines, possibly some in the cecum.

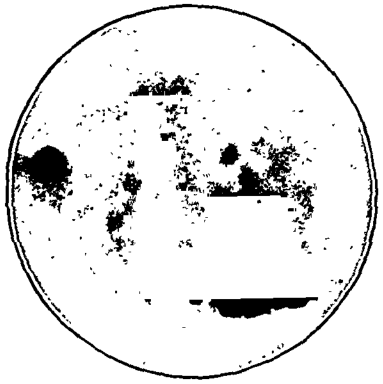


Fig. 5.—Three hours and ten minutes. A trace of barium in the stomach; moderate amount of barium in the small intestine. Cecum, ascending colon and hepatic flexure almost completely filled, with greater part of barium in these situations.

In the present study, two cases were observed in reference to the rapidity with which a suspension of barium sulphate could travel from the stomach to the cecum and thence through the large intestine to the outlet of the body.

CASE 1.—James L., aged 8 months, weight 14 pounds, 6 ounces. Physical examination negative. Admitted to the hospital for observation as he had had three convulsions several days before. The evening preceding the experiment he was given a dose of castor oil to clear the bowel, and feedings of dextrinized barley gruel started, which were continued through the experiment. The object of stopping milk and giving a fairly soluble food was to avoid possible hard curdling or any digestive disturbance that might interfere with the progress of the barium. At 9:30 a. m. he was given a meal consisting of a heaping teaspoonful of barium sulphate in 8 ounces of acacia by the stomach-tube. An ordinary Roentgen-ray tube was used with an intensifying screen and length of exposure one-tenth second. The infant was placed on the face and abdomen, with arms and legs extended, and Roentgen tube 14 inches from the plate.

A comparison of all the figures shows that up to Figure 5 (three hours and 10 minutes) there is very little gas in the colon. After this time there is considerable gas in the ascending colon and hepatic flexure as well as in the splenic flexure and descending colon. Seven hours after the barium meal the gas begins to disappear from the whole colon, apparently simultaneously with the evacuation of the barium column from the colon into the rectum.

CASE 2.—William J., 7 months, weight 14 pounds, 4 ounces. Physical examination negative. Sent to hospital for loose bowels. This condition was relieved and when the pictures were taken the bowels were constipated with stools rather hard and infrequent. A dose of castor oil was given in the

---

* Chairman's address before the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

evening followed by dextrinized barley gruel feedings as before. At 9:30 a. m. a heaping teaspoonful of barium sulphate in 8 ounces of mucilage of acacia was given by the stomach-tube.

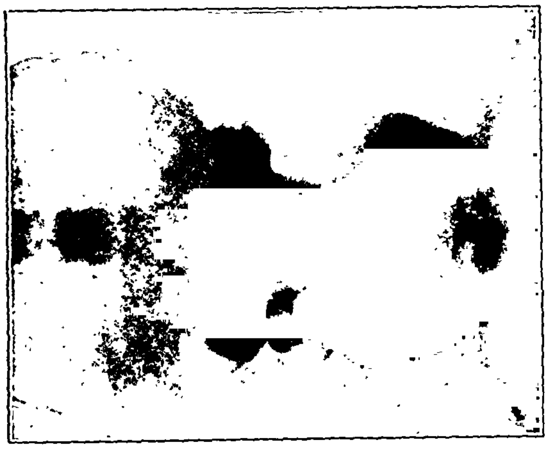


Fig. 8.—Six hours. Cecum, ascending colon and transverse colon to the splenic flexure well distended with barium. Small amount of barium in the sigmoid.

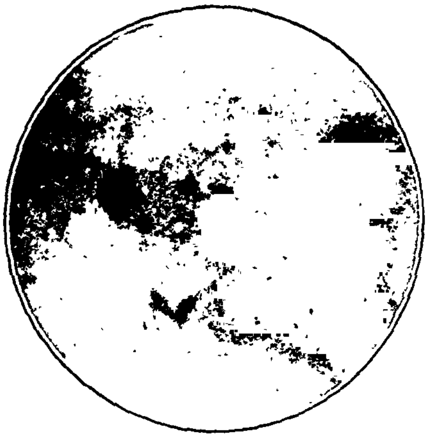


Fig. 9.—Seven hours. Some residue of barium in the cecum. Greater part of the barium has disappeared from the ascending and transverse colon. A considerable amount of barium in the descending colon. Rectum well distended with barium.

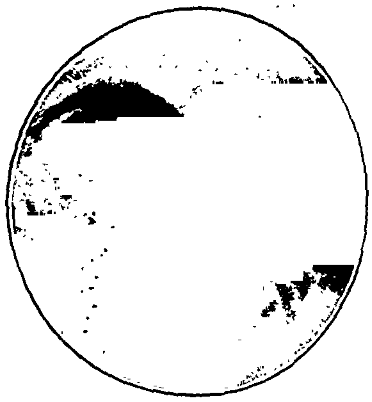


Fig. 10.—Twenty minutes. Stomach horizontal. Very remarkable in that a noticeable amount of barium is already in the small intestine.

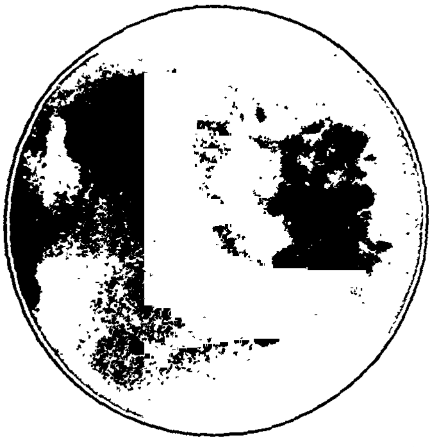


Fig. 12.—One hour and forty minutes. Stomach contains a small amount of barium. Still a considerable amount of barium in the small intestines. Ascending colon, hepatic flexure and a part of the transverse colon contain barium.

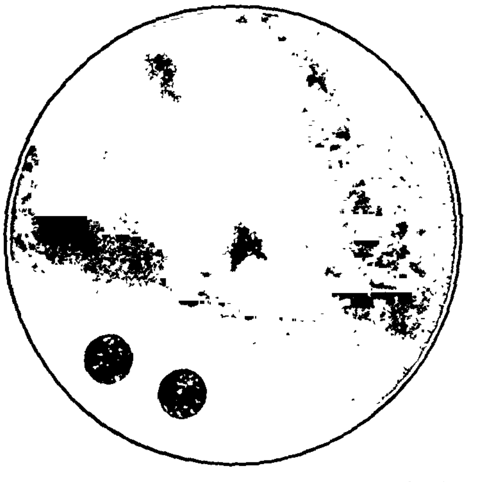


Fig. 14.—Two hours and thirty minutes. Small amount of barium in the stomach. The entire small intestine contains some barium. Cecum well filled with barium and the hepatic flexure, ascending and transverse colon, splenic flexure and first third of the descending colon contain barium.

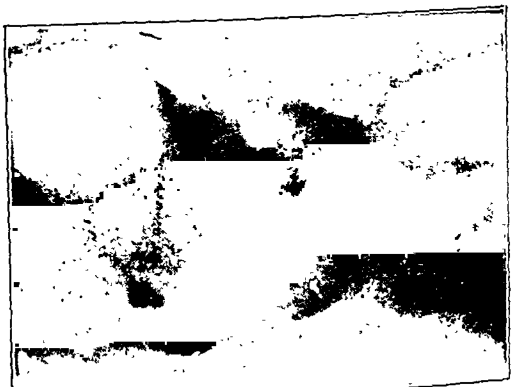


Fig. 17.—Six hours. A considerable amount of gas in the stomach. Cecum, ascending colon and hepatic flexure well distended with barium. Transverse and descending colon empty. Sigmoid flexure and rectum filled with barium (defecation). This suggests that reverse peristalsis may take place when cecal digestion is not as yet complete.

These two experiments were made on infants of about the same age, weight and general development. In seven hours the barium meal had traveled through the gastro-intestinal tract, as most of the barium column was then evacuated from the colon into the rectum. The end of the barium column is, of course, the measure of the motility of the bowel. It must be remembered, also, in these and similar experiments, that foreign bodies, like bismuth and barium, are undoubtedly expelled from the stomach and pass along the intestines more rapidly than normal food. The use of the carbohydrate base tends to prevent interference with stomach acidity.

An interesting account is given by Holzknecht[1] of studies made by him on the motions of the bowel by means of a fluorescent screen. He found that the normal progress of the contents of the duodenum and small intestine is by intermittent, irregular and rapid little jets or jerks. "A cylinder of chyme will be formed, the size of a small coin in section and a finger in length. This will be driven forward for a few seconds at intervals of a minute or two. The suddenness of the movement stretches the intestinal tube, the valvulae conniventes stiffen, and their edges break up and rotate the fluid stream." He further calls attention to the fact that hardly any one has seen the normal peristalsis of the colon. Such peristalsis takes place suddenly, lasting only for a few seconds and occurs at long intervals. He finds, with Stierlin, that these jerks occur from six to eight times in twenty-four hours, the number of displacements varying with different individuals. One case was mentioned in which the whole transverse colon was emptied into the descending colon in three seconds as seen by the fluoroscope.

A third series of cases was studied after a clysma of barium had been given. The location and form of the sigmoid flexure was noted with special reference to the possible passage of tubes. Attention was also given to the distensibility of the colon, the form and situation of the splenic and hepatic flexures, and the patency of the ileocecal valve. Ten infants were thus studied, with thirteen pairs of plates, so that stereoscopic views could be procured. The ages were as follows: 2 months, 9 weeks, 3 months, 4 months, 7 months, 8½ months, 9 months, 13 months, 18 months and 25 months. An ordinary Roentgen-ray tube was used, as before, with an intensifying screen and length of exposure one-tenth second. Each infant received half an ounce of castor oil four hours before the clysma and was afterward fed with barley water until after the experiment. Eight drops of paregoric were given half an hour before the injection and the rectum painted with a 2 per cent. cocain solution just before administering the barium clysma. This was found helpful in controlling the bowels. Four heaping teaspoonfuls of barium sulphate to each 8 ounces of acacia were injected and the amount retained varied from about 4 to 16 ounces. The feet were held higher than the head and the tube inserted about 4 inches into the rectum, while the funnel through which the barium mixture passed was held about 18 inches above the child. The buttocks were then held tightly together until after the picture was taken. Little barium was usually retained if these precautions were not observed.

---

[1] Holzknecht, G.: Berl. klin. Wchnschr., 1911, xlviii, No. 4, translated in Arch. Roentg. Ray, July, 1912.

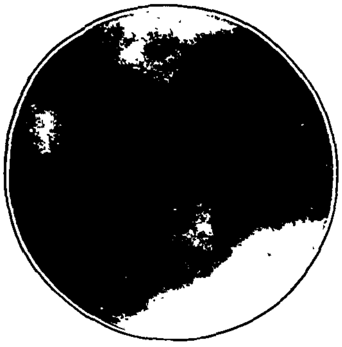


Fig. 18.—Seven hours. Cecum, ascending colon and first third of descending colon empty. Transverse colon filled near splenic flexure, which is nearly empty. Rest of descending colon, sigmoid flexure and rectum filled.

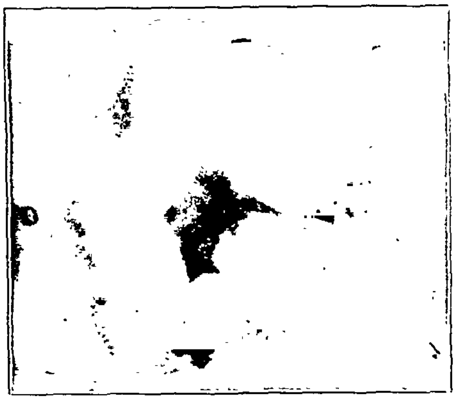


Fig. 19.—For description see Experiment 1.

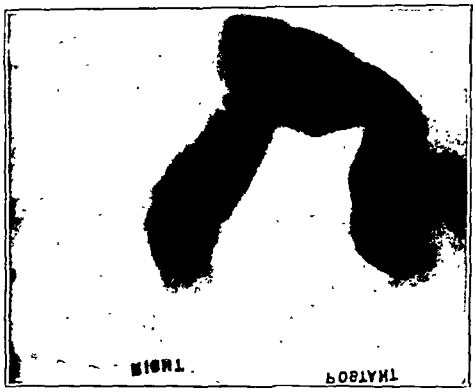


Fig. 20.—For description see Experiment 2.

The picture was begun right after the injection, averaging about half a minute, the child held face downward on its abdomen and the tube 14 inches from the plate.

The results shown in Experiments 1 to 13 were noted:

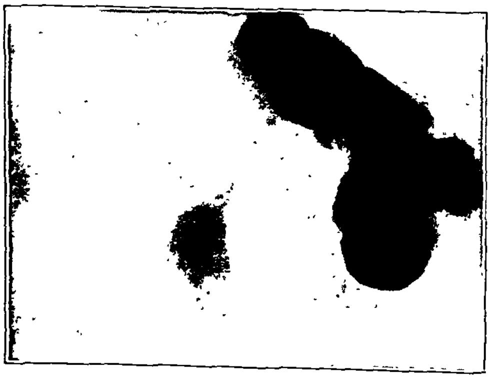


Fig 21.—For description see Experiment 2.

Experiment 1 (Fig. 19).—Colon entirely filled, holding 16 ounces. Sigmoid flexure above the umbilicus and falls to the left.

Experiment 2 (Fig. 20).—Rectum, sigmoid flexure, descending colon, splenic flexure and transverse colon filled. Hepatic flexure, ascending colon and cecum outlined with feces, gas and streaks of barium.

Experiment 2 (Fig. 21).—Picture taken fifteen seconds after Figure 20. A peristaltic wave is seen in the transverse colon. The bowel holds 16 ounces. Sigmoid flexure is well above the crest of the ilium, and has fallen over to the right.

Experiment 3.—Colon entirely filled. Holds 8 ounces. Sigmoid rises as high as the transverse colon and lies in the form of a figure S.

Experiment 4.—Colon completely filled, holding 16 ounces. Ileocecal valve patent. Sigmoid rises above the umbilicus and shows a complete twist.

Experiment 5 (Fig. 24).—Colon completely filled and some barium in small intestine. Holds 8 ounces. Sigmoid passes nearly to umbilicus then downward to the left.

Experiment 6 (Fig. 25).—Colon, sigmoid and rectum filled. Splenic flexure and lower third of descending colon partly filled. Transverse colon and upper two-thirds of descending colon show streaks. Sigmoid rises to umbilicus and then downward and to the left. Holds only about 2 ounces.

Experiment 7: Cecum empty. Ascending colon partly filled. Bowel filled from hepatic flexure to rectum. Holds 16 ounces. Sigmoid rises to level of umbilicus and falls to right.

Experiment 8: Splenic flexure, descending colon, sigmoid and rectum filled. Ascending colon, hepatic flexure and transverse colon show streaks. Holds only about 4 ounces. Sigmoid rises to crest of ilium and turns to left of descending colon.

Experiment 9: Lower half of descending colon, sigmoid and rectum filled. Above this, streaks, up to hepatic flexure and the rest empty. Sixteen ounces injected but most all expelled. Sigmoid rises above umbilicus and falls to right.

Experiment 10: Colon entirely filled from hepatic flexure to rectum. Cecum and ascending colon obscured from sigmoid lying in front. Transverse colon shows peristaltic wave. Sigmoid far to the right, carrying with it the descending colon, apparently due to a long mesocolon. Holds 16 ounces.

Experiment 11: Colon filled, but cecum obscured by sigmoid. Sigmoid rises in front of cecum and above umbilicus almost to transverse colon and then falls to the right. Holds 16 ounces.

Experiment 12: Colon filled but sigmoid obscured. Holds about 8 ounces.

Experiment 13: Colon only partly filled as most of the barium was expelled and picture obscured. In this case the precautions of giving the opiate and cocain to the rectum were not carried out.

It is seen that in these cases there was much difference in various parts of the colon as regards mobility. The hepatic flexure, transverse colon and sigmoid flexure showed the greatest variability. Any injected substances that get past the sigmoid flexure reach the cecum very quickly, and without using much force, as these pictures were taken not more than a minute after the clysmas were given. In one of the cases (Fig. 24) the ileocecal valve was patent, the barium being distinctly seen in the small intestine, and in another case it was doubtful put probable. Dr. James T. Case[2] reports that out of a series of 200 gastro-intestinal cases 33 showed the ileocecal valve incompetent as determined by the barium clysma. Kraus found the ileocecal valve incompetent in only 12 cases out of 150 examinations. He states that the ileocecal valve is patent in new-born infants. This is a subject that warrants future study.

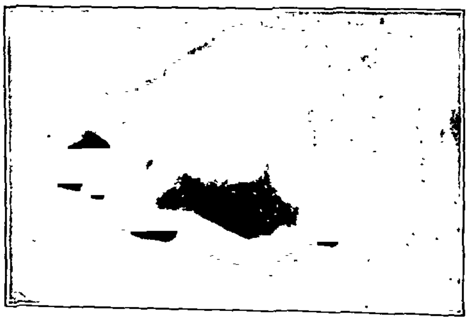


Fig. 24.—For description see Experiment 5.

A study of the sigmoid flexure in these cases showed remarkable variations both in form and situation. This structure seems to occupy greater space than has hitherto been supposed. The previous notes show how twisted and doubled-up in all directions it may be during life and how it may occasionally reach as high as the transverse colon.

---

[2] Case, James T.: Am. Quart Roentgenol., November, 1912.

From these and other studies it is evident that it is rarely, if ever, possible to pass a tube through this structure. Nothnagel and Boas, years ago, held that a tube could not be made to pass the sigmoid, and later Lilienthal, in 1906, verified this fact by roentgenograms. The tubes could be passed only to the bend or apex of the sigmoid flexure, when they impinged on the wall, the long mesentery of the sigmoid stretching out like a fan, permitting no further progress. Still later, Soper[3] reported sixty cases in which the position of the tube was verified by radiographs and the tube was always found coiled up in a dilated rectum. In only one case was he able to introduce a tube higher than the dome of the rectum and this proved to be Hirschsprung's disease. The last illustration here shown is an example of this congenital dilatation and hypertrophy of the colon. In Figure 25 the transverse colon has sagged into the pelvis.

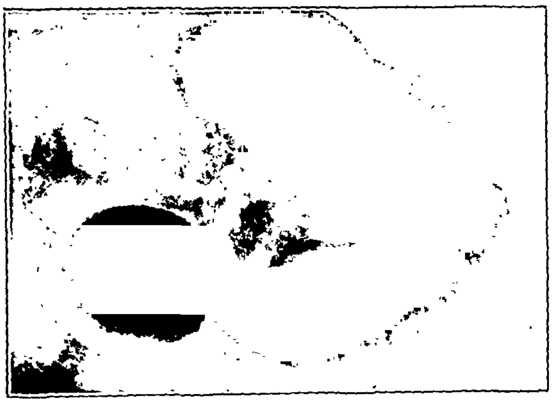


Fig. 25.—Congenital dilatation and hypertrophy of colon.

In making these experiments I am much indebted to Dr. Marshall C. Pease for preparing and observing the cases, to Dr. Lewis for taking the pictures in the Roentgen-ray laboratory of the New York Post-Graduate Hospital, and also to Dr. Kast in aiding in an interpretation of the plates.

51 West Fifty-First Street.

USE OF THE ROENTGEN RAY IN THE DIAGNOSIS OF OBSCURE ABDOMINAL CONDITIONS IN INFANCY AND CHILDHOOD *

JOHN LOVETT MORSE, A.M., M.D.
Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician at the Children's Hospital and at The Infants' Hospital
BOSTON

I have been much impressed, during the last two years, by the assistance given by the Roentgen ray in the diagnosis of obscure abdominal conditions in infancy and childhood. It not only bids fair to settle definitely the time required for the emptying of the infant's stomach under normal conditions and the effect of the various foodstuffs and salts on this time, but also to be of the greatest value in determining the presence and nature of pathologic abdominal conditions in early life. It has in many instances, in my experience, afforded information which could not have been obtained in any other way, and has made the diagnosis easy in conditions the nature of which could only have been guessed at in the absence of this information. It makes a positive diagnosis easy in many obscure cases, and in many others reveals abnormal conditions which without it would be entirely overlooked.

I shall not attempt to enumerate all the conditions in which the Roentgen ray may be of assistance in diagnosis, but shall merely mention a few in which I have myself found it useful.

It is often extremely difficult to distinguish between chronic gastric indigestion, spasm of the pylorus and stenosis of the pylorus in early infancy on the basis of the history and physical examination. The Roentgen ray is of the greatest assistance in differentiating between these conditions and not infrequently gives information in a few hours which could not be obtained in any other way for days or even weeks. It shows conclusively how soon the food begins to leave the stomach, how rapidly it leaves and how long it is before the stomach is empty. The following cases show its value in the diagnosis of these conditions:

Case 1.—J. M., boy, was born at full term, after a normal labor, and was normal at birth. He was entirely breast-fed and his mother apparently had plenty of milk. He began to vomit when a little over 2 weeks old, the vomiting occurring after every feeding. The amount of the vomitus was at first small, but soon became large. He sometimes vomited while taking the breast, but at other times not until after an hour or more. He at times did not vomit until after the next feeding, when he vomited a large amount. The vomiting eventually became projectile. Changing the intervals between the nursings had made no difference in the vomiting. Barley-water was vomited the same as the breast milk, and during the last four days even water had been vomited. The stools

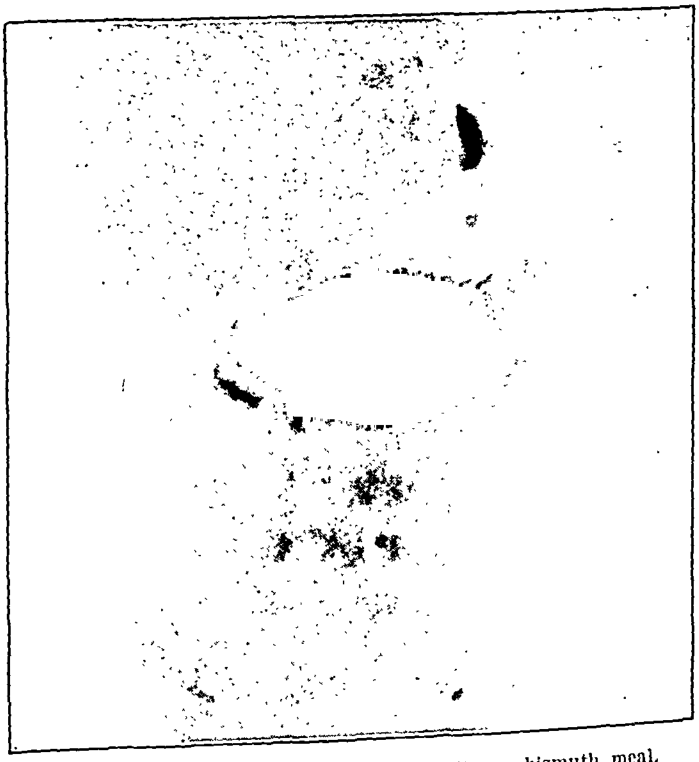


Fig. 2.—Case 1. Taken six hours after a bismuth meal.

---

[3] Soper, Horace W.: The Colon Tube and the High Enema, The Journal A. M. A., Aug. 7, 1909, p. 426.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

were normal in amount and character during the first three weeks, but since then they had been small, green and slimy. The bowels had not moved during the last three days. He had passed very little urine for two weeks, and had lost weight very rapidly. He was seen when 6 weeks old.

Physical examination showed a fairly developed and nourished baby, of fair color. The fontanel was depressed and the bones of the skull overlapped a little. The abdomen was sunken. The stomach extended 3 cm. below the navel. Marked waves of peristalsis were seen running from left to right after nursing. The baby then had spasms of pain, followed by retching and vomiting. The vomiting was not explosive. No tumor was felt either before or after the vomiting. During the examination he passed a partially formed, medium-sized, greenish-brown stool, which contained considerable mucus, but no definite food elements.

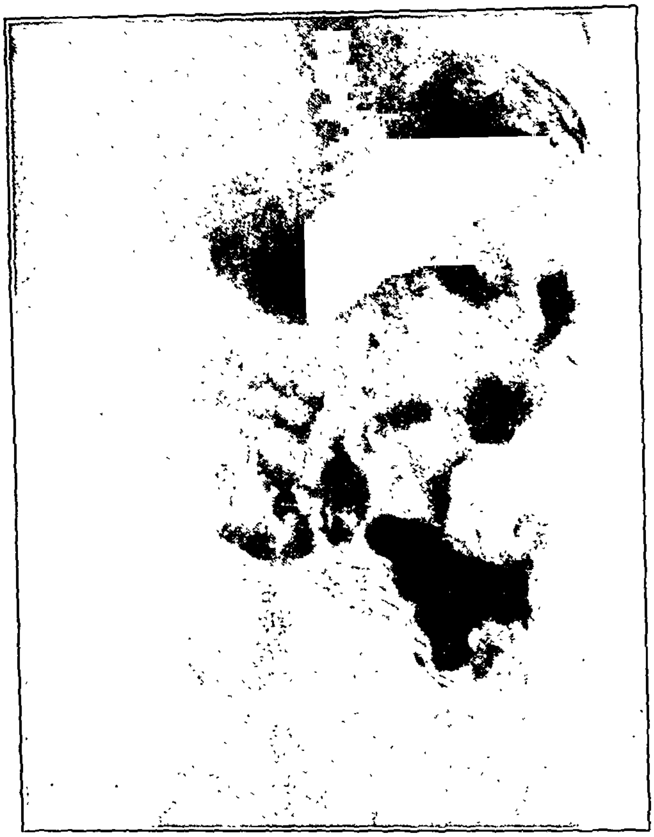


Fig. 4.—Case 2. Taken forty minutes after a bismuth meal.

The history in this instance was characteristic of stenosis of the pylorus. The absence of a palpable tumor and of explosive vomiting pointed, however, to spasm of the pylorus. Chronic gastric indigestion was, of course, out of the question. A roentgenogram (Fig. 1) taken immediately after a bismuth meal showed no food leaving the stomach. Repeated pictures, taken at first every fifteen minutes and then every half-hour until six hours (Fig. 2) had elapsed, showed that nothing whatever left the stomach during this time. Many of them, moreover, showed definite indentations of peristalsis. He was allowed to nurse ten minutes before the last picture was taken, because feeding will sometimes stimulate peristalsis and cause the stomach to empty itself. These pictures at once established the positive diagnosis of stenosis of the pylorus.

Case 2.—W. B., boy, weighed 8 pounds at birth. He was nursed for ten weeks, when he was weaned on account of persistent vomiting. A Mellin's Food mixture, equal parts of fat-free milk and barley-water, to which lactose was added, a mixture of fat-free milk and boiled water, to which dextri-maltose was added, and whey were also vomited. He had recently been given eight feedings of 2 or 3 ounces. He vomited immediately after every feeding, although he did not always vomit all that he took. The food was vomited practically as it was taken. He had never vomited a larger quantity at one time than the amount taken at the last feeding. He usually did not vomit more than once after each feeding, but at times vomited several times between feedings. The vomiting had never been explosive. It was, however, often associated with pain. The bowels were constipated, but with the help of milk of magnesia and suppositories he had had one fair-sized, yellow, well-digested movement daily. He had regained his birth-weight in two weeks, but since then had gradually dropped to 6¾ pounds. He was seen when 3½ months old.

He was well developed, but emaciated. The fontanel was depressed. After feeding, the stomach was clearly visible in the epigastrium. The lower border was 1 cm. above the navel, the level above that of the thorax. There was questionable peristalsis, but no tumor was made out when the stomach was either full or empty.

A roentgenogram (Fig. 3), taken immediately after a bismuth meal, showed no bismuth leaving the stomach. One taken forty minutes later (Fig. 4) showed, however, that a considerable portion of the meal had left the stomach. It also showed marked indentations of peristalsis. One, taken at the end of two hours, showed that the stomach was empty. These pictures proved conclusively, therefore, that there was no organic stenosis of the pylorus and that the symptoms were due either to spasm of the pylorus or to a disturbance of the digestion. The development of the vomiting on breast-milk and the persistence of the vomiting on a reasonable diet, together with the visible persistalsis and the marked indentations of the stomach wall shown in the roentgenograms, proved that the case was one of spasm rather than of indigestion.

Case 3.—M. C., girl, weighed 7 pounds at birth. She had been nursed from the beginning. She was given the breast for fifteen minutes every two and one-half hours by day and twice during the night. She had vomited after every feeding since she was a week old. The vomiting sometimes occurred immediately, sometimes about an hour after feeding. The vomiting had not been explosive and she had never vomited more than she had taken at the last feeding. She was apparently always hungry and never satisfied. She had had one smooth, yellow stool daily. Her weight when she was seen, when 2 months old, was a little less than 8 pounds.

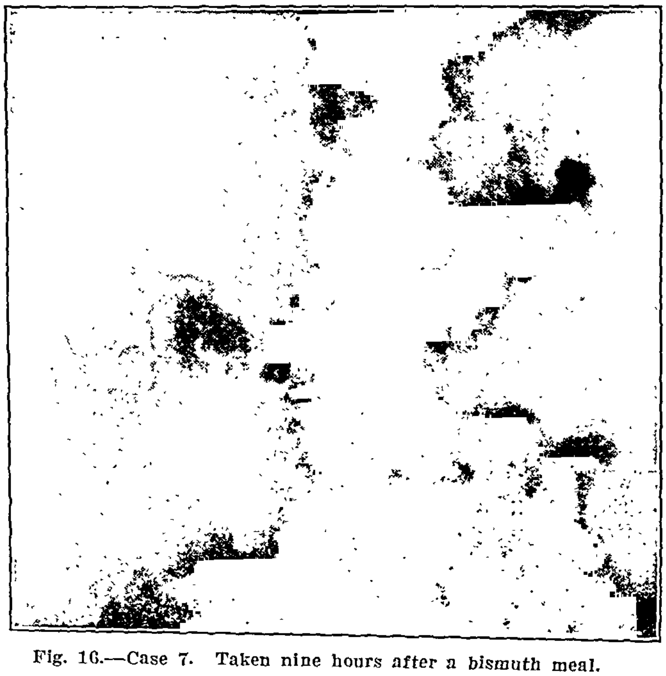


Fig. 16.—Case 7. Taken nine hours after a bismuth meal.

She was fairly developed and nourished, but rather pale. The fontanel was level. The abdomen was soft, there was no visible gastric peristalsis and no tumor was felt in the region of the pylorus.

A roentgenogram (Fig. 5) taken immediately after a bismuth meal showed that the food was already beginning to leave the stomach, while one (Fig. 6) taken fifteen minutes later showed that a considerable amount had already passed through the pylorus. The symptoms in this instance, while pointing more strongly to gastric indigestion than to any more serious condition, were suggestive enough of pyloric spasm or stenosis to cause considerable anxiety. The roentgenogram excluded the more serious conditions within fifteen minutes.

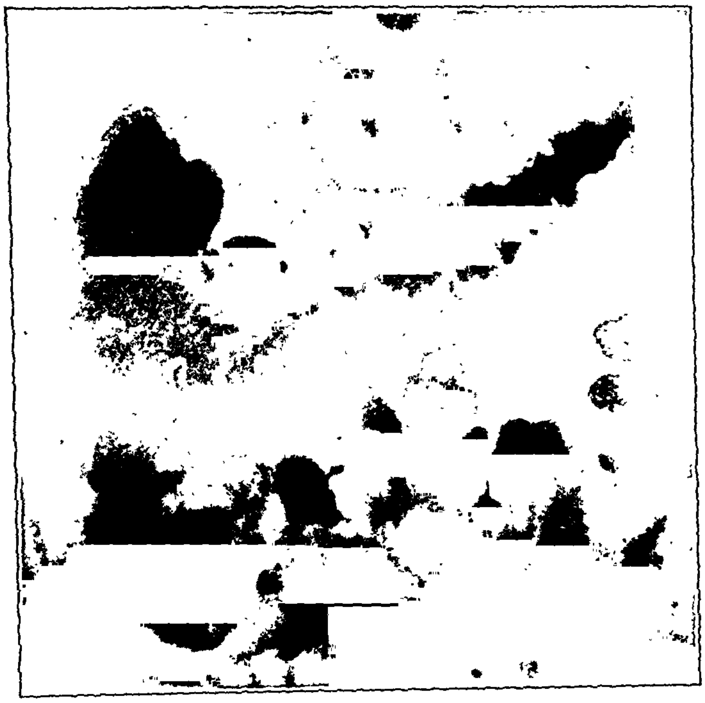


Fig. 17.—Case 7. Taken twenty-four hours after a bismuth meal.

There is probably no class of cases in childhood in which the diagnosis is more difficult than that in which there are recurrent attacks of vomiting and abdominal pain, either singly or in combination. In this class of cases also the Roentgen ray furnishes evidence of the greatest importance and in many instances discloses the cause of the symptoms. It not infrequently reveals conditions which could not be determined in any other way. The following cases are illustrative of this class.

Case 4.—A. C., boy, aged 6½ years, had had recurrent attacks of vomiting ever since he was weaned. They had come at first once in six or eight months, but recently every few weeks. The attacks began suddenly with pain in the region of the navel. The pain was more or less continuous. Vomiting always began in less than an hour and persisted. The attacks were always associated with constipation and were relieved when the bowels were thoroughly emptied. They lasted from thirty-six hours to ten days. He was sometimes so weak toward the end of an attack that he did not recognize his parents. He was circumcised in April, 1912, because it was thought that reflex irritation from phimosis might be the cause of the attacks. A diagnosis of recurrent vomiting from acid intoxication was made in one of our hospitals in October, 1912, because of the presence of acetone in the urine and breath. His appendix was removed in another hospital in December, 1912, during one of these attacks. They, nevertheless, persisted. He was seen in February, 1913.

He was well developed and fairly nourished. The level of the abdomen was a little below that of the thorax. It was soft and tympanitic. There were no evidences of fluid, no masses were felt and there was no spasm. There was a little tenderness on deep pressure in the left upper quadrant. Rectal examination showed nothing abnormal.

A roentgenogram (Fig. 7) taken while he was lying down, immediately after a bismuth meal, showed that the lower border of the stomach was on a level with the crests of the ilia. Another (Fig. 8), taken six hours later, showed the lower border of the stomach still lower, with considerable bismuth still in it. One (Fig. 9), taken twenty-four hours after the meal, showed the stomach free from bismuth and the colon filled with it. The upper margin of the transverse colon was at the level of the navel. Still another (Fig. 10), taken after a bismuth enema, showed a marked prolapse and consequent kinking of the large intestine.

The attacks were evidently due, therefore (Figs. 7, 8, 9 and 10), to temporary intestinal obstruction, resulting from splanchnoptosis. This condition could not have been recognized in any other way. If the Roentgen ray had been used earlier he would have been spared two unnecessary operations.

Case 5.—I. R., girl, aged 10½ years, had always been constipated, but had otherwise been very well. She had had repeated attacks of very severe pain in the lower abdomen since the middle of December, 1912. The pain lasted from ten to fifteen minutes and was so severe that she cried out, pulled her hair and lay down and writhed about. The pain stopped suddenly and she then had a strong desire to urinate. She sometimes had four or five attacks in a day, but at other times went as long as a week without one. The attacks were followed by dull pain in the lower abdomen for about twenty-four hours. She had been more constipated since these attacks began, sometimes, in spite of cathartics, going a week without a movement. She was seen early in March, 1913.

She was well-developed and fairly nourished. Her tongue was clean. The level of the abdomen was that of the thorax. It was soft, no masses were felt and there were no evidences of fluid. There was slight tenderness on deep palpation in the median line below the navel. There was no tenderness in the region of the kidneys, and they were not palpable. The rectal examination showed nothing abnormal. The urine was of normal color, acid in reaction, and contained no albumin. The sediment showed nothing abnormal.

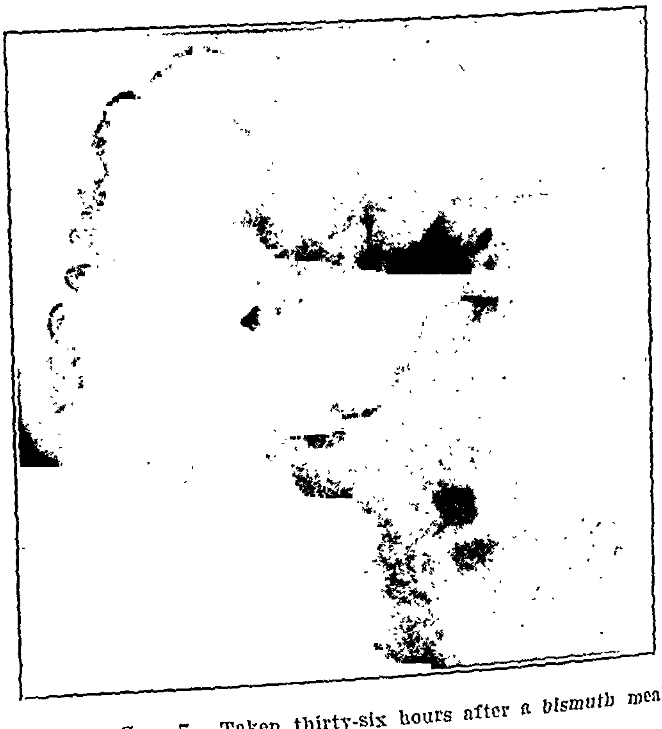


Fig. 18.—Case 7. Taken thirty-six hours after a bismuth meal.

The symptoms suggested a stone in the bladder more than anything else, although it was evident that the pain might be due to interference with intestinal peristalsis from any one of many causes. Roentgenograms, taken one-half hour (Fig. 11) and two and three-quarter hours (Fig. 12) after a bismuth meal, showed that the stomach was in the normal position and that it emptied itself with normal rapidity. They showed no evidences of stone in either the kidneys or bladder. Another (Fig. 14), taken six hours after a bismuth meal, showed all the bismuth in the cecum and lower third of the ascending colon, proving that there was no interference with the passage of food through the small intestine. One (Fig. 14), taken twenty-four hours after a bismuth meal, showed the cecum and ascending colon empty, while the transverse and descending colon were full of bismuth. The hepatic flexure was only a short distance above the crest of the ilium and the transverse colon sagged down in a V-shape, so that the lowest portion reached nearly to the pubes. The transverse colon was also considerably distended. A roentgenogram taken after a bismuth enema showed the same condition.

The attacks of pain were evidently due therefore (Figs. 11, 12, 13 and 14), to the interference with the intestinal peristalsis resulting from the malposition of the colon, not to a stone in the bladder, peritonitis or pressure on the bowel from the outside.

Case 6.—H. E., girl, aged 9½ years, began two years before, to have acute attacks of pain in the abdomen. These attacks occurred about once in two weeks and lasted about an hour. Vomiting gave immediate relief. There was no apparent relation between the ingestion of food, urination or defecation and these attacks. She continued to have them at irregular intervals for four months. During the next summer she had no attacks, but during the following winter they were more severe and occurred at more frequent intervals. She had no attacks during the following summer and was well until the middle of February, when the attacks again recurred. They were more severe than before and the pain was more definitely located in the left half of the abdomen. During the next month she had two or three attacks a week, the attacks lasting from one-half hour to five hours. Emesis from mustard-water immediately relieved them, but nothing else did. The bowels often moved and she often passed urine during the attack without any relief. She was never jaundiced after the attacks and there was no increased frequency of micturition or trouble in passing urine during the attacks. They were not associated with fever. She was seen, in an attack, the middle of March. She lay on her back, writhing with pain, with her legs drawn up and her face pinched. The left upper quadrant of the abdomen was held very tense and there was tenderness in this region. She was immediately relieved by emesis after the ingestion of mustard-water. The tenderness and spasm in the left upper quadrant of the abdomen at once disappeared.

The patient looked perfectly normal in every way. The level of the abdomen was that of the thorax. There was no muscular spasm, no masses were felt and there was no tenderness. The kidneys were not palpable. The liver and spleen could not be felt. The knee-jerks were present and equal. The pupils reacted to both light and accommodation.

The location of the pain, the instant relief after vomiting, and the absence of urinary symptoms pointed strongly to the gastro-enteric tract as the cause of the symptoms. A series of roentgenograms showed, however, that the stomach and intestines were in the normal position and performed their mechanical functions normally. They also showed, however, a stone in the left kidney (Fig. 15), a condition which certainly would not have been expected from the symptoms.

The following case is another example of pain and vomiting in childhood in which a positive diagnosis would have been impossible without the assistance of the Roentgen ray, except with an exploratory laparotomy.

Case 7.—O. L., girl, aged 15½ years, was not nursed when a baby and had much disturbance of the digestion during the first three years. She had always been constipated and for many years had had frequent attacks of colic and abdominal distress. As the result of these attacks, she had been afraid to eat and her diet had become so limited that she was a semi-invalid. When 13½ years old, and again when 15, she had had very severe attacks of abdominal pain, associated with distention and vomiting, lasting for several days. A month before she was seen she came into the hands of a new physician, who found resistance and slight tenderness in the region of the appendix. These symptoms disappeared when her bowels were thoroughly moved. Three weeks later, after a light dinner, she had an attack of pain and distress in the abdomen and vomited about 2 quarts of brownish material, without marked gastric or fecal odor. She was seen a week later.

The patient was short and thin, but of fair color. Her tongue was somewhat coated. The abdomen was sunken and showed nothing whatever abnormal. She stood in normal position, not in that usually assumed when there is prolapse of the abdominal organs.

Roentgenograms, taken after a bismuth meal, showed on two occasions exactly the same points. There was marked prolapse of the stomach and small intestines, with delay in emptying the stomach. The sigmoid and the splenic flexure were in the normal position. There was marked prolapse of the cecum into the pelvis, with prolapse of the ascending colon. The ascending colon was bent sharply downward on itself for 4 or 5 inches, when it turned sharply upward into the transverse colon, which ran up to the splenic flexure in the normal position. The two parts of the ascending colon were always in the same relation to each other in all positions and at all times. The plate (Fig. 16), taken nine hours after the bismuth meal, showed the stomach empty, but a residue of bismuth in the first part of the duodenum. It also showed the cecum deep down in the pelvis. Those taken twenty-four and thirty-six hours after the meal (Figs. 17 and 18) showed the bend in the ascending colon and also showed that the position of the two parts of the ascending colon to each other is always the same.

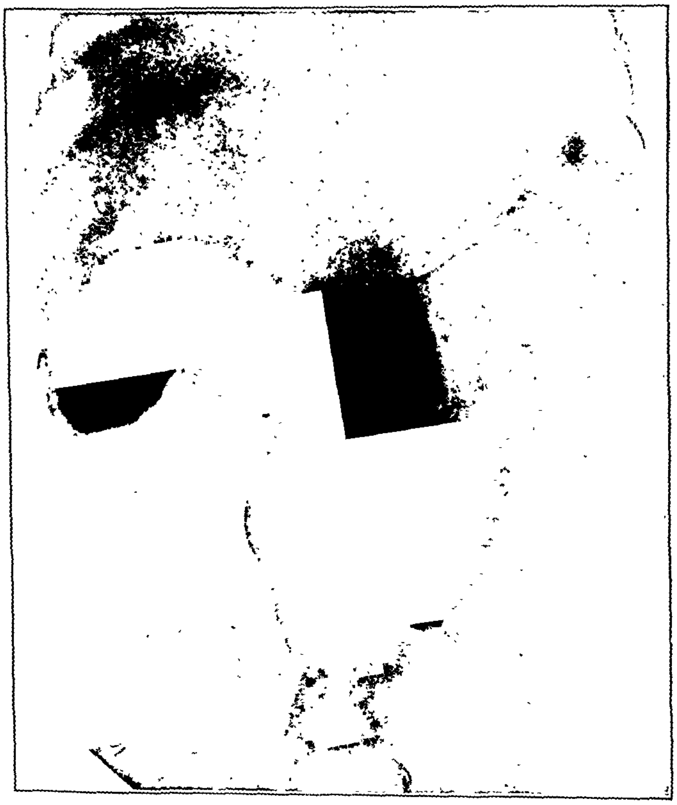


Fig. 23.—Case 9. Taken anteroposteriorly after bismuth enema.

These pictures (Figs. 16, 17 and 18) justify the diagnosis of adhesions binding down the colon and involving the duodenum, with presumably secondary prolapse of the stomach and small intestines. The constipation was probably due to the obstruction caused by the adhesions, and the attacks of vomiting to blocking. A laparotomy, two months later, revealed peritoneal adhesions in the places shown by the Roentgen ray.

Constipation is one of the most troublesome disorders of childhood and it is often difficult to determine the cause of the constipation. The Roentgen ray is of great assistance in many of these cases in determining whether or not there is any delay in the passage of the food through the gastro-enteric tract and, if so, where the delay takes place. The following instance shows how much information may be gained from the use of the Roentgen ray in these cases:

Case 8.—B. J., boy, aged 4 years, was very hard to feed as an infant, a wet-nurse finally having been necessary. He did very well, however, until he was weaned, since when he had had repeated attacks of indigestion, with vomiting. These attacks were always preceded by an increase in the constipation, which was always present. In spite of careful feeding, he required laxatives almost constantly.

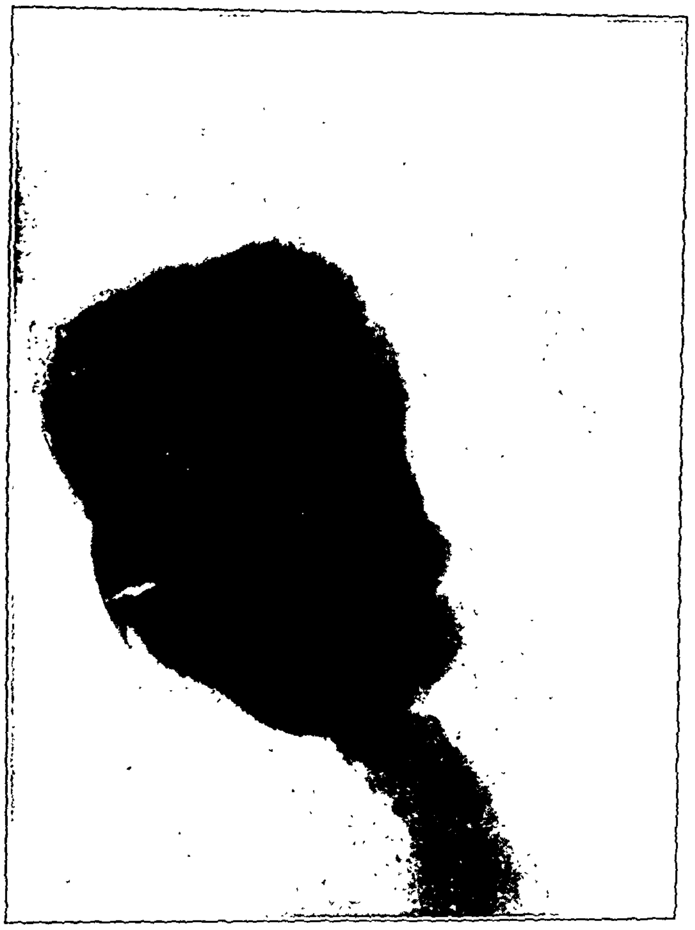


Fig. 24.—Case 9. Taken laterally after bismuth enema.

He was in fair general condition and his color was good. His tongue was clean. The abdomen was sunken and nothing abnormal was detected in it. A roentgenogram (Fig. 19), taken immediately after a bismuth meal, showed the stomach in normal position. Another (Fig. 20), taken two hours later, showed that no bismuth had left the stomach during this time. One (Fig. 21), taken six hours after the meal, showed that, while there was a residue still present in the stomach, the greater part of that which had escaped had passed into the large intestine. One (Fig. 22), taken twenty-four hours after the meal, showed the stomach and small intestines empty and almost the whole of the meal in the cecum and ascending colon, very little of it having passed farther on. The constipation was evidently due, therefore, not to sluggish peristalsis in general, but to delay in the colon, the delay in emptying the stomach probably playing no part in the etiology of the constipation.

It is often important to determine whether the colon is in front of or behind an abdominal tumor. Dilatation of the colon with air or water is of assistance in determining this point in some instances. In many others, however, the results obtained in this way are most unsatisfactory. Here, also, the Roentgen ray is often of great assistance. Roentgenograms of the abdomen after a bismuth enema show accurately the position of the large intestine.

Case 9.—These roentgenograms (Figs. 23 and 24) of the abdomen of a baby, 19 months old, with a large sarcoma of the left kidney, illustrate very well the value of this method of examination. The one taken anteroposteriorly shows the bismuth in the sigmoid and in the transverse colon. It is almost entirely squeezed out of the ascending colon and splenic flexure by the pressure of the tumor. That (Fig. 24) taken laterally shows the colon separated from the spine by the tumor.

The Roentgen ray is sometimes of great assistance in differentiating intussusception from infectious diarrhea, in both of which conditions there is blood and mucus in the stools. In some cases of intussusception the roentgenogram taken after a bismuth enema shows a cup-shaped cap of bismuth about the lower end of the intussuscipiens, while in infectious diarrhea the bismuth is generally disseminated throughout the colon. Unfortunately, however, the picture is not always so plain in intussusception, and it is impossible to be certain from the roentgenogram whether there is or is not an intussusception.

These examples are, it seems to me, sufficient to show how useful the Roentgen ray is in the diagnosis of obscure abdominal conditions in childhood and to illustrate how varied the conditions are in which it is of service. There are probably also many other conditions, which have not been mentioned in this paper, in which it will prove to be of equal value.

70 Bay State Road.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CHAPIN AND MORSE

Dr. Abraham Jacobi, New York: Dr. Chapin referred to some conditions which have been known in former years simply from a physiologic and anatomic point of view. In connection with the two cases which he calls Hirschsprung's disease, he mentions protracted constipation, and, from his illustrations of the lower part of the colon and sigmoid, I concluded that some of these cases were undobutedly those that forty years ago were called by me congenital constipation. That means a condition of the sigmoid in which it is so long that it forms not one convolution only, but two or more, and absolute constipation is the result. When you find a baby that has been constipated from birth, a constipation lasting for months or years, with a mother who has the full amount of breast milk and who gives the baby no other food, you have reason to conclude that the case is one of congenital multiple sigmoid flexions. When the sigmoid is so long, it bends on itself, and sometimes absolute obstruction occurs. This is, however, not to be called Hirschsprung's disease, which means a congenital dilatation of the colon, the genuine megalocolon, which is a rare occurrence.

Dr. G. R. Pisek, New York: It is significant that we should have three papers dealing with this method of diagnosis in one afternoon. It proves the increasing value of the method and should emphasize the importance to all of us of the use of the Roentgen ray in pediatric work; and particularly urge us to take advantage of the newer methods that experts in this line are developing. In other words, the fact that we can take instantaneous serial pictures, without any danger whatever to the little patient, is of inestimable value, particularly in conditions dealing with pyloric spasm and pyloric stenosis. Indeed, if this were the only use, it would be worth while, for it enables us to differentiate the two conditions, tells us when to put the case into the hands of the surgeon or satisfies us that it can be treated medically.

I was glad to see Dr. Morse's pictures of gastroptosis. It has occurred to me that possibly such diseases as psychic vomiting may also be found by these methods to be of anatomic origin. Possibly we may find that a number of these related conditions are precursors of diseases of the digestive tract in later life.

Dr. L. G. Cole, New York: I should like to ask Dr. Chapin if he considers that the contraction, which he obtained in two cases after giving an enema, is the same thing that Holzknecht described as occurring when food is given by mouth and allowed to progress through the gastro-intestinal tract in the regular way, or whether he considers the contraction he has shown as a spasm from unusual filling of the colon from below.

Dr. A. W. Crane, Kalamazoo, Mich.: It is gratifying to see Roentgen-ray methods invading the realm of general practice, not excepting pediatrics. In the past children have been bad subjects for roentgenoscopy, but with instanteous exposures conditions have changed. Roentgenography will, however, fail to impress the general practitioner as a true clinical method of examination. It is the fluorescent screen which gives us true moving-picture images of the stomach and intestines, as well as of heart, lungs and diaphragm, and provides us with a direct clinical method of examining the child.

The first objection that might be suggested to you should be the danger of exposing young tissues to the Roentgen ray. This danger may be minimized by using the smallest amperage which will give a clean-cut shadow, and the slowest number of interruptions which will admit of shadows without flickering. In this way roentgenoscopy extending from five to ten minutes will be comparable in quantity of ray used to that used in instantaneous work, in which several roentgenograms are made. Dr. Cole of New York is one of the best qualified men in the United States to discuss this question of serial roentgenograms. He has recommended that no studies of the stomach be made without ten or twenty roentgenograms of the stomach in series. If we use a screen, plates are not, as a rule, needed.

Only by repeated studies on the part of many pediatricians, can the mass of knowledge necessary to interpret roentgenograms be worked out. The large number of cases that has come before the Holzknecht X-Ray Clinic in Vienna has enabled them to work out a uniform technic whereby a normal or diseased stomach under certain conditions would present certain definite pictures to the examiner. It is only by having a uniform technic that we can classify results and arrive at a collective experience of value in the examination of the stomach and intestines. It seems to me that those who have witnessed screen examinations in a dark room and have palpated the stomach and colon while they are under observation, can realize the transcendent value of this method. There is no other clinical method which offers so much for the future of diagnosis.

Dr. Henry F. Helmholz, Chicago: I should like to ask Dr. Morse about the case with the "V"-shaped transverse colon. I have noticed in post mortems on children that this condition is quite frequent. I wonder whether he has roentgenograms of a large number of cases to indicate how often this occurs.

Dr. H. Lowenburg, Philadelphia: While I agree that it is of great importance to make roentgenographic studies of these cases, it is wrong to give the impression, especially with reference to cases of pyloric obstruction, that they must necessarily be studied in that way in order to determine the diagnosis, prognosis and treatment. I was particularly interested in Dr. Morse's paper. With reference to his first series, I think the same results can be obtained by the administration of charcoal. You can test the patency of the pylorus by the administration of charcoal and whether or not it can be recovered in the feces. This depends on the degree of obstruction. If charcoal is recovered the next day in the stomach washings it indicates considerable or complete obstruction, and the possibility that the case will become surgical is made greater. Absence of charcoal in the washings lessens the possibility of operation. I think that the greatest field for Dr. Morse's work is in the second series, or in older children. The prognosis of pyloric obstruction depends entirely on the clinical features, namely, on the degree of obstruction as determined by the amount of constipation, the charcoal test, the degree of emaciation and the strength and the persistence of vomiting. If a child is passing a little feces and the body remains stationary, or there is a little gain, we have a right to watch the case. I think the weight, strength and the degree of constipation determine whether or not operation should be performed. Whether the case be one of spasm or of hypertrophy is not important, as complete or incomplete obstruction may be due to either or to both; therefore, I think that a better term than pyloric stenosis would be pyloric obstruction, partial or complete, depending on either hypertrophy or spasm, or a combination of these.

Dr. John L. Morse, Boston: Dr. Sever of Boston is making a large number of roentgenograms of children after administering bismuth in order to get the relations of the intestines. It is not at all uncommon to find a "V"-shaped colon as shown here to-day, and to have the children manifest no symptoms whatever. It does not seem to me that it is justifiable to make a diagnosis of abnormality simply from a picture. If there are symptoms which can be explained in no other way and the picture shows an abnormality, it seems to me reasonable to consider this abnormality as the cause of the symptoms. This is especially true when the putting on of an abdominal band and the giving of exercises relieves the symptoms.

Dr. L. R. DeBuys, New Orleans: There are many chemicals which will give a shadow with the Roentgen ray. I have felt, however, that since bismuth had no ill effect whatever it was safe to use it. There is no doubt that we have in the past been procrastinating too much before referring our patients to the surgeon. They have frequently been given to the surgeon after they have become poor surgical risks. Since the mortality is 50 per cent., it seems to me that we should adopt all the means possible to establish a diagnosis in order to place these cases in the hands of the surgeon earlier. After the diagnosis is made with the aid of the Roentgen ray and we are prepared to turn the case over immediately, if necessary, then we are justified in putting off operation so long as the baby is making a daily gain and improving satisfactorily, because for each day the baby lives, if he gains in weight, his resistance will become greater and he will be better able to withstand an operation.

Dr. Henry Dwight Chapin, New York: With reference to Dr. Cole's question, I consider that possibly due to peristalsis. I cannot say positively. It may have been due to spasm.

DISARTICULATION OF THE KNEE-JOINT [*]

F. J. GAENSLEN, M.D.
MILWAUKEE, WIS.

It is not often that the orthopedic surgeon is called on to amputate an extremity. Occasionally amputation may have to be resorted to as a life-saving measure, in far-advanced tuberculosis or other bone disease. The fact, therefore, that such occasions do arise, as well as the fact that the procedure to be described involves essentially orthopedic principles, are sufficient reasons for bringing up the subject before this Section.

In conditions requiring amputation through or in the neighborhood of the knee-joint the surgeon has a considerable variety of operative methods to choose from. In this choice he is influenced in the first place by the pathologic condition present which determines how much of the limb must be sacrificed regardless of other conditions, and in the second place by the desire to leave the patient as useful a stump as possible. In the latter consideration weight-bearing is probably the most important factor. The literature on the subject evidences a considerable diversity of opinion as to the relative value of disarticulating operations as compared with the transcondyloid or supracondyloid amputations. The chief objection to disarticulating operations has been urged from the esthetic side because the joint of the artificial limb occupies a lower level than the normal. In the erect position this is perhaps immaterial; but in sitting the thigh of the side operated on seems considerably longer. This objection does not seem to be a very valid one, as in the construction of the artificial limb the joints in the side bars can be raised sufficiently so that the difference in length will be reduced to a minimum; in fact, it will be reduced to the thickness of a heavy leather cap forming a socket for the stump. Figure 1, which represents a direct lateral view, shows that the difference is practically negligible. The advice, therefore, that disarticulations are better suited for the working-classes, while amputations through or above the condyles are better suited for those laying greater stress on the appearance of the limb, seems questionable.

---

[*] Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

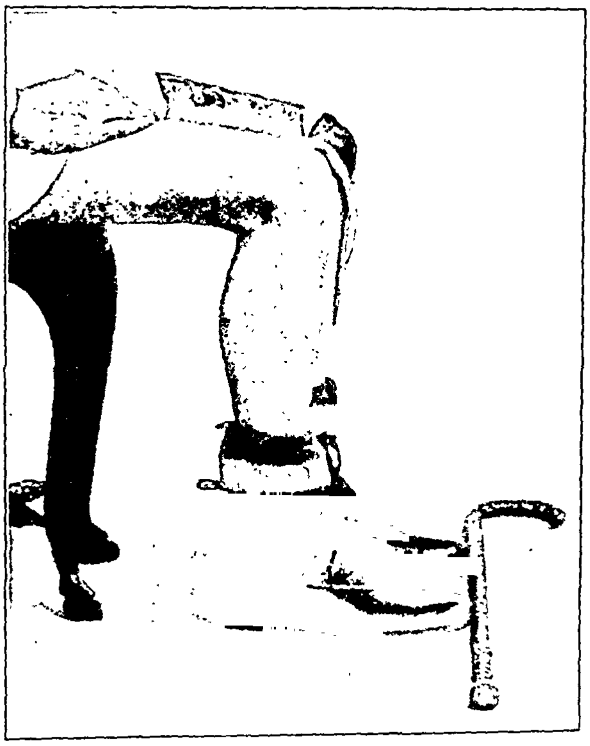


Fig. 1.—Direct lateral view with patient seated, showing slight difference in lengths of the two thighs.

The method about to be described was devised for the purpose of securing a broad weight-bearing surface utilizing the patella in addition to the condyles in contrast to methods previously described. In common with other disarticulating operations there is no necessity for carrying the artificial limb to the tuber ischii for support, as is the case in all thigh amputations.

The principal points in the technic are the preservation of the patella and the extensor apparatus by division of the patellar ligament close to the tibial tubercle; lengthening of the quadriceps tendon to allow the patella to be brought down into apposition with the lower surface of the femur, and the performing of an arthrodesis between the patella and femur in the intercondyloid space at such a point that the pressure-bearing surface of the patella will lie on a level with the condyles. In this way weight will be distributed equally between these three large, smooth surfaces, thus affording an eminently satisfactory weight-bearing surface. Furthermore, the skin covering the patella is usually more or less thickened and therefore suited for bearing pressure. The muscular balance of the limb is little interfered with.

In the brief review of the various methods of amputation in this region, mention will be made only of points which are of importance in comparison with the method already outlined.

Until Carden's transcondyloid operation became better known, it seems that a good many lower third thigh operations were performed which might with benefit have been made through the condyles. Among the advantages rightly claimed for this were that the section of the bone was below the marrow cavity, that the vascular cancellous tissue healed more quickly, and that the cut surface was broad enough to yield an adequate weight-bearing surface in the majority of cases, while the great length of the extremity insured good control of the artificial limb. Furthermore, there was much less tendency to protrusion of the bone. The objections to the method were the occasional sloughing of the flaps, whether long anterior or posterior, and occasionally, also, a tender scar closely adherent to the bone rendered weight-bearing difficult. Lister said of it at that time, "Considering, therefore, that this procedure can be substituted for amputation of the thigh in the great majority of cases, both of injury and disease formerly supposed to demand it, Carden's operation must be considered a great advance in surgery."

Gritti's operation marked a further advance in utilizing the patella as a weight-bearing surface. He sacrificed the lower portion of the condyles, making his section transcondyloid, and after shaving off the cartilaginous surface of the patella fixed it to the cut surface of the femur. An objection here was the marked disproportion in size between the section of the femur and that of the patella, the latter forming only an incomplete cover. Furthermore, there was such great tension that the patella frequently became dislodged, sliding back to its former position in front of the femur, or else became partially loosened and tilted, rendering weight-bearing painful or impossible. In other cases, when sufficient tension was made to keep it in place, necrosis from pressure sometimes resulted. In order to overcome these objections Stokes modified Gritti's method by carrying his section of the femur fully one inch above the condyles, thus making it a supracondyloid operation. This allowed the patella to be brought into position more easily, while the disproportion in size between the bone surfaces was greatly diminished. Care must be taken in employing this method to save the adductor tubercle, the integrity of the adductors being of great service in the control of the stump.

Disarticulating operations require long flaps in order to cover the large condyles, and therefore in many cases, when sufficiently long flaps are not available, the transcondyloid, or perhaps better, the supracondyloid operations, will have to be resorted to following the Stokes-Gritti method.

When one has a choice, disarticulation with lateral flaps seems to offer decided advantages over the other procedures mentioned. The advantages are the preservation of the broad condyles intact as weight-bearers, and the preservation of the semilunar cartilages with their fascial attachments, causing little disturbance of the muscular balance as well as insuring against retraction of the soft parts with consequent protrusion of the bone. This method usually goes by the name of Stephen Smith.

The procedure employed in the case to be reported differs from the latter in the lengthening of the quadriceps tendon, allowing the patella to be brought down between the condyles; arthrodesis between the patella and intercondyloid surface, and fixation of the patella in this position by the suturing *of the patellar ligament to* the hamstring tendons and capsular tissues behind. The advantages of this procedure are employment of the patella as a [illegible] ace in addition to the broad condyle [illegible] of the patella, which insures better preservation of the quadriceps apparatus, while suturing of the ligamentum patellae and hamstrings posteriorly affords firm attachments for the latter tendons and further safeguards against retraction of the soft parts which would result in thinning and fretting of the skin with consequent danger of exposure of the bone. Figures 2 and 3 show the patella in place as indicated, the lower portion of the patella being practically on a level with the lower surfaces of the condyles. These radiograms were taken about three months after operation.

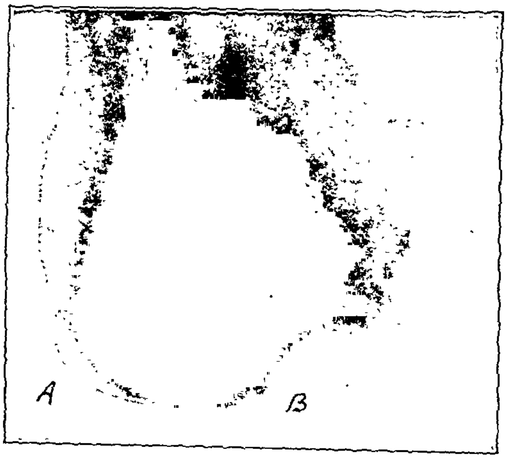


Fig. 2.—Lateral view showing patella (*a-b*) on under surface of femur between condyles.

While all of the methods outlined no doubt will find special applicability in individual cases, depending on the character and localization of the pathologic lesion as well as nutrition of the integument, my method has given a satisfactory result and can be recommended whenever existing conditions permit.

REPORT OF CASES

History.—A man aged 56, saloonkeeper, with negative family history, Pott's disease in childhood and recovered with moderate kyphosis. Sixteen years ago the tibia was trephined for supposed osteomyelitis. The wound discharged for about a year, but finally healed after a secondary operation at which several small sequestra were removed. The wound remained closed until a year and a half ago when the patient in falling bruised the scar over the shin. An acute osteomyelitis developed and continued with more or less marked constitutional symptoms which gradually undermined his health. The radiogram revealed such extensive destruction of bone that fracture seemed imminent. In view of the patient's age and general condition, disarticulation was suggested.

Operation and Result.—Feb. 18, 1913, an incision was made beginning in the middle line posteriorly above the joint line extending vertically downward, then sweeping outward in a blunt curve with the convexity downward, the lowest point being about 2.5 cm. below the tibial tubercle. The incision was then carried upward inside of the tibial tubercle and about 1 cm. inside the inner edge of the patella to 5 or 6 cm. above the upper edge of the patella. This brought the scar between the patella and the inner condyle and out of the way of pressure. A similar flap was cut on the inside, meeting the vertical portion of the first. The skin and fascia were now dissected upward a short distance. The soft structures about the joint were divided transversely and dissected with the skin and fascia to provide a thick covering for the stump. The patellar ligament was divided close to the tibial tubercle. The section through the joint was carried between the head of the tibia and the semilunar cartilages, leaving these on the femoral side. The quadriceps tendon was then lengthened by two transverse incisions about 3 cm. apart, beginning at opposite sides of the tendon and extending about two-thirds across the width of the tendon. An attempt to do this from beneath with the flap reflected upward proved unsatisfactory so that the patella and tendon were dissected partially free from the flap. The patella was now brought down in the desired position and with chisel and hammer the cartilaginous surfaces of the patella and the intercondyloid space were removed, exposing the marrow. The ligamentum patellae was sutured posteriorly to accessible portions of the hamstring tendons and posterior capsule. The closure of the wound was with silkworm gut and fine black silk, a cigarette drain being left posteriorly. A large dressing was held in place with broad adhesive straps so adjusted as to keep the thigh flexed to avoid tension. The drain was removed in three days, the wound remaining clean and the flap margin showing no sloughing. While the patient remained in bed flexion was continued with sand-bags and pillows. The patient left the hospital at the end of three weeks with the wound completely healed. He was instructed to keep up flexion for several weeks more whether recumbent or erect. The artificial limb was applied three months from the date of the operation and the patient has been able from the first to bear full weight on the stump without difficulty.

408 Goldsmith Building.

ABSTRACT OF DISCUSSION

DR. EDWIN W. RYERSON, Chicago: The chief difficulty that I can see with this particular operation was partly covered by Dr. Gaenslen in his paper; that is, that it makes a femur that is no shorter than the other and that, theoretically at least, is a little longer; so that it is difficult for the apparatus maker to construct an artificial leg that will not protrude too far when the patient is sitting. It is difficult to avoid conspicuous deformity when the patient has his trousers on. I have done several amputations at the knee-joint for various causes; and the instrument maker assured me that a shorter stump was mechanically advantageous, so far as his experience went. The recommendation to remove the adductor tubercle is wise, although it is the adductor magnus only that is fastened to it, and the other adductors furnish good power. The insertion of the quadratus into the hamstring tendons is also wise, but is usually neglected by general surgeons in this work. Otherwise, the tendons will react and a great deal of muscular power of the thigh will be lost.

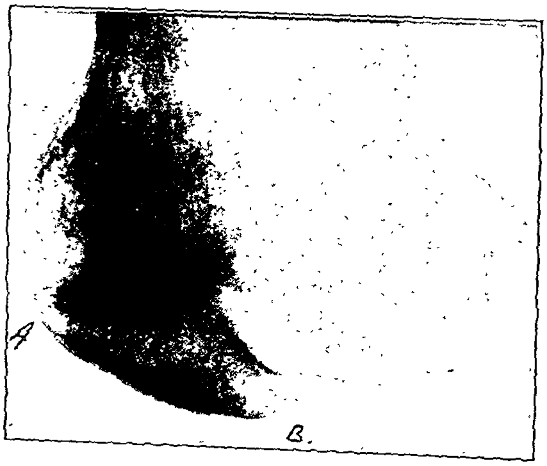


Fig. 3.—Anteroposterior view.

Dr. F. J. Gaenslen, Milwaukee, Wis.: I have nothing to add, except that, in the preparation of the artificial limb, the socket for the stump consists of a heavy sole-leather cap, which is scarcely more than a quarter of an inch in thickness. As a result there is, in sitting, only a minimal difference in length of thighs. In the present instance the increase in length was negligible.

A STUDY OF THE END-RESULTS OF THE BALDY-WEBSTER OPERATION *

JOHN OSBORN POLAK, M.D., M.Sc.
BROOKLYN

In this brief paper, which is based on a personal experience of over 400 cases, I shall attempt to draw conclusions from the end-results of the Baldy-Webster operation.

THE PRINCIPLES OF UTERINE SUPPORT

The uterus is a freely movable organ and is suspended in the pelvis between the abdominal cavity and the pelvic floor by the harmonious action of all of its supports; that is:

The pelvic floor.
The adjacent pelvic organs.
The retentive power of the abdominal cavity (*intra-abdominal pressure*).
The several ligaments.
Finally, by the normal relation which the uterine axis bears to the axis of the vagina.

The axis of the uterus with the bladder and rectum moderately full conforms with the axis of the pelvis, and is nearly at a right angle with that of the vagina. With the bladder empty, the axis of the vagina is almost horizontal and runs almost directly backward, while the uterus is directed forward at an acute angle.

Normally, the fundus of the uterus is at or a little above the level of the pelvic brim, while the inferior extremity of the uterus, the cervix, projects into the vagina and is directed toward the last sacral vertebra. With all the adjacent pelvic structures in their normal state, the cervix is more or less a fixed point, lying in the plane of the ischial spines, a little posterior to the center of the pelvis. The cervix is held in this position by the uteropelvic ligaments and the uterosacral ligaments and the vesicovaginal fascial plate; the body rests on the pubic shelf.

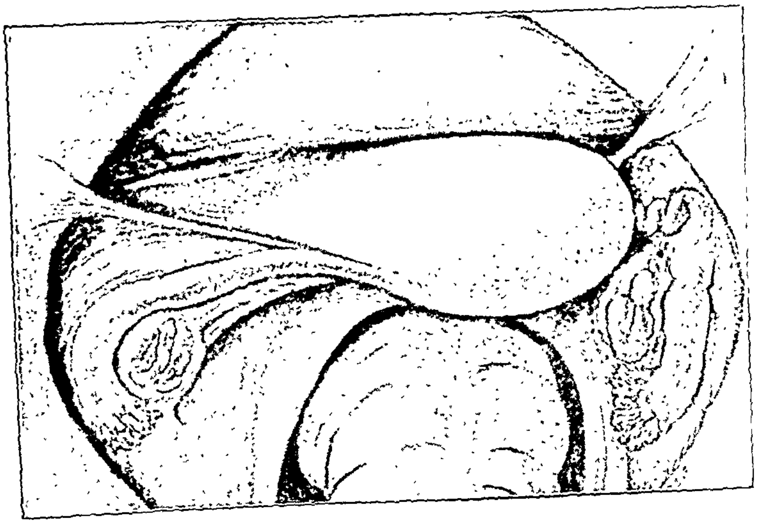


Fig. 1.—Lateral version of the uterus.

The normal axis of the uterus has a wide range of inclination, depending on the degree of fulness of the bladder and rectum; the uterus moves upward and downward with each respiratory excursion and changes its position with that of the body.

THE ACTION OF ITS SUPPORTING LIGAMENTS

The uteropelvic ligaments consist of bands of muscle fibers running outward from the supravaginal portion of the cervix to the pelvic fascia, within the base of each broad ligament; they prevent the uterus from undergoing lateral changes in position and help materially in preventing uterine prolapse. The broad ligaments act in some measure to steady the uterus in or near the median section of the pelvis. The uterosacral ligaments pull the cervix backward and upward, thus tending to antevert the body, while the round ligaments act as stays or "guy-ropes" to draw the uterus forward and prevent it from falling backward. The round ligaments are muscular bands covered with peritoneum.

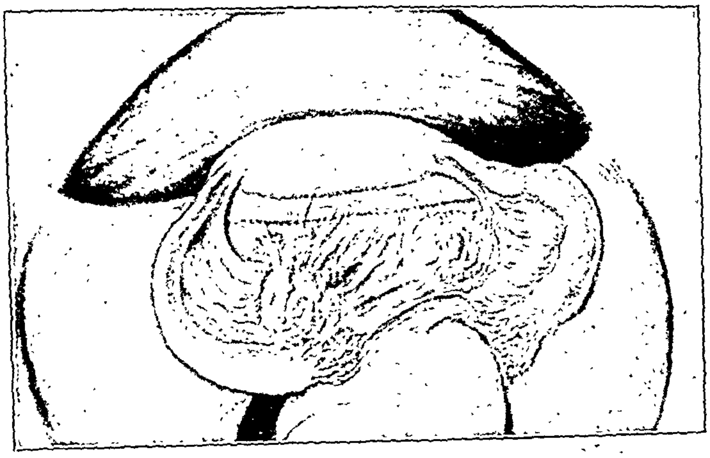


Fig. 2.—Ovaries adherent to one another and thrown upward and inward by heavy uterus slipping out of sling.

WHAT THE BALDY-WEBSTER *OPERATION* DOES

The Baldy-Webster operation elevates the uterus and its adnexa and holds the fundus forward. This is accomplished, according to Baldy, by three forces:

1. The intra-abdominal pressure on the posterior fundal wall.
2. The encircling band formed by the round ligaments.
3. The downward pull of the round ligaments on the uterine cornua.

In this operation the uterus is upehld by the encircling loop of the round ligament which is sutured to the posterior surface of the body, in a line just below the level of insertion of the utero-ovarian ligament. The ovaries and fallopian tubes rest free of broad ligament attachment on the round ligaments, as they pass through the broad and under the utero-ovarian ligaments.

The perfect correction of a retrodeviation of the uterus by this operation must therefore depend on the following conditions:

1. A cervix held backward and upward by well-developed uterosacrals.
2. A good pelvic floor to preserve the position and integrity of all of the pelvic organs.
3. A uterus of moderate size and weight, and round ligaments of equal length and thickness which can be made to encircle the uterus.

The technical difficulties of the operation are for the most part insignificant, yet they are present.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

POSSIBLE COMPLICATING DIFFICULTIES IN THE TECHNIC

Clinically, we find that the round ligaments are frequently unequally developed in length, thickness, and in muscular tone; this is commonly so post partum, when the retroversion or flexion is associated with subinvolution, descensus and pelvic injury. The use of such ligaments for the Baldy-Webster operation must necessarily produce a lateral version of the uterus, and this has been an end-result too often noted (Fig. 1).

Varicosities of the veins of the pampiniform plexus are common to all retrodisplacements with descensus. The passage of the round ligament through the opening made for it by blunt dissection in the broad ligament may injure these veins of the utero-ovarian anastomosis and give rise to troublesome bleeding, the control of which by ligature may further interfere with the venous circulation, or even produce a thrombophlebitis which may extend from the pelvis to the femoral or the saphenous vein. Thrombosis has been relatively more frequent following this operation than after other procedures on the round ligaments.

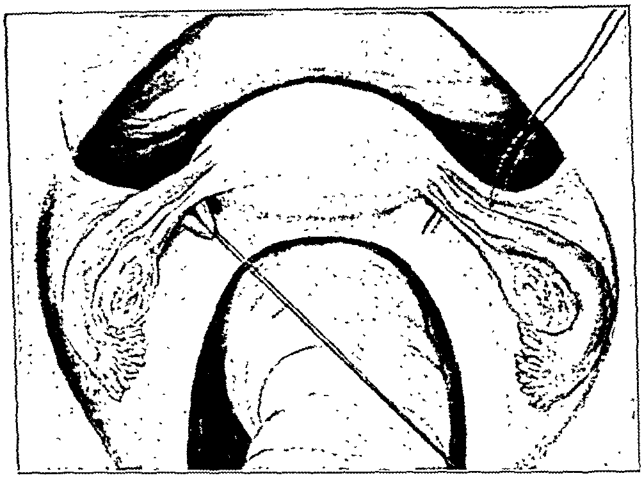


Fig. 3.—Author's technic.

Strangulation of a portion of the ligament which has been drawn behind the uterus is not uncommon, and has occasioned in several instances a local peritonitis. Congenital or acquired adhesion of the sigmoid to the posterior surface of the broad ligament may complicate the technic by relatively shortening the ligament on that side.

Unless the ligaments are fastened low enough on the posterior uterine wall, i.e., just below the level of the utero-ovarian insertion, there is a tendency for the ovaries to be carried upward and to be thrown over forward with the rolling forward of the broad ligaments; they may even be rolled into the anterior peritoneal pouch, while if the attachment is too low, the ligaments serve as a loop over which the body may bend, making a retroflexion out of a retroversion.

Torsion of the ligaments is a common error in technic, the importance of which is apparently not appreciated by many operators; this always gives rise to swelling from obstruction to the circulation of the ligament, and local peritonitis with more or less extensive local adhesions. I believe that the severe inguinal pain noted following some of these operations may be attributed to this cause.

To the critics who state that the Baldy-Webster operation puts a strain on the weakest part of the ligament, i.e., the portion nearest the inguinal canal, I would state that this operation does not claim to suspend the uterus by supporting or hanging it by the round ligaments, as does the Gilliam, but simply draws the fundus forward, and if the cervix is well back and firmly held there by the uterosacrals, intra-abdominal pressure will retain the organ in anteversion.

ITS EFFECT ON THE POSITION OF THE OVARIES

The ovaries are elevated by this operation. This is accomplished in the following manner:

1. By the general elevation and anteversion of the uterus.

2. By the rolling forward of the top of the broad ligament, owing to the pull backward of the round ligament as it passes through the hole in the broad ligament. The patency of the tubes, if free from adhesions, is not interfered with by this disposition of the round ligament.

In almost all cases of retroversion of long standing there are varicosities of the broad ligaments, and changes in the size, position and histology of the ovaries, which result in prolapse, thickened stroma and cystic degeneration, making it imperative, in order to secure a symptomatic cure, that the basic causes as well as the position be corrected, i.e., that the pelvic circulation be equalized, not obstructed. In the ideal case in which the uterus is not too heavy, the ovaries and tubes are normal and the cervix is held well back toward the sacrum by its supports; i.e., the uterosacral and the uteropelvic ligaments. Shortening the round ligaments by encircling the uterus with the loop of the round ligament meets all of the claims of its originators; but when the uterus is heavy, the round ligaments attenuated or unequally developed, and the cervix points forward, either because of congenital malformation, or as a result of the stretching of the uterosacral ligaments, the uterus will fall into lateral version or sag in the pelvis. What really takes place when the uterus sags may be illustrated by attempting to lift a small boy by placing your arms under his axillae and embracing him with your forearms. He can't get away except by sliding from your embrace by raising his arms. So the uterus slides out of the encircling band down into the pelvis, raising the ovaries and throwing them inward toward the median line, where they may become adherent to one another, behind and above the ligamentous sling (Fig. 2).

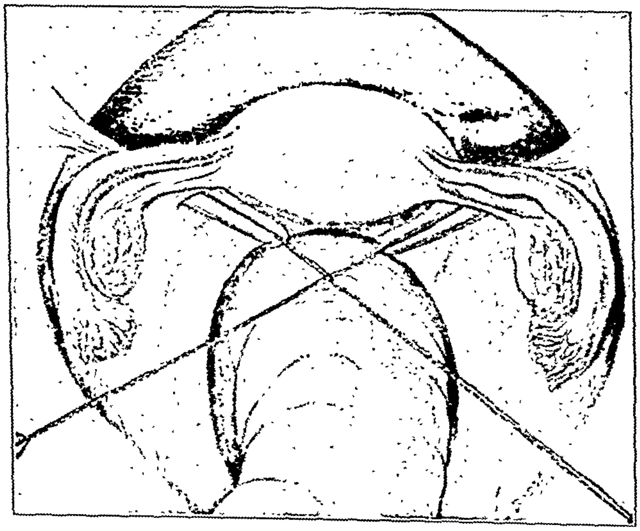


Fig. 4.—Author's technic.

Yet no operation for retroversion of the uterus seems to meet the indications so perfectly as does this one of Baldy's, when all conditions [illegible] vorable.

The technic in my clinic has been slightly varied from that described by Baldy in 1910. I have felt that grasping the ligaments with "guy-ropes" causes less trauma than catching them with clamps. Again, I have substituted a Cleveland ligature carrier for the clamp to pass through the free space below the ovarian ligament, as being less likely to injure the blood-vessels than the Kocher forceps. I have generally spread out the loop of each round ligament on the posterior surface of the uterus, fixing it at three points; i.e., in the median line to its fellow from the opposite side; to the utero-ovarian ligament at the point at which the folded ligament passes through the broad ligament, and to the uterine wall midway between these two points (Figs. 3, 4 and 5).

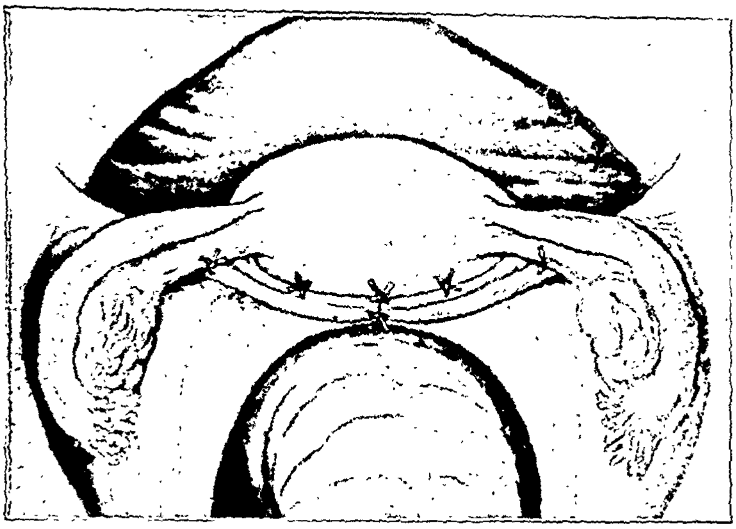


Fig. 5.—Author's technic. Sutures in place.

From a study of the records of the 400 operations in my clinic from Jan. 1, 1908, to Jan. 1, 1913, I make the following summary:

SUMMARY

Twenty-four patients have been lost track of and have not been seen by either my assistants or myself since their operation, thus leaving 376 for analysis. These women have been watched for periods varying from five months to five years and many of them have been examined repeatedly. Two hundred and two, or more than 50 per cent., have perfect pelves; the uterus is in its anatomic position in the pelvis and free from adnexal or parametrial inflammation. Of this number, 160 have had complete relief of all pelvic symptoms.

Thirty-nine having an anatomically perfect pelvis, still complain of pelvic pain, with burning sensations over the lower abdomen, and suffer from menstrual pain in the back and side.

Three have died from causes independent of the operation before or soon after leaving the hospital. It is among the remaining 174 that we find our complications and disappointments.

Fourteen have had secondary operations for pelvic or abdominal conditions, and the intra-abdominal pathologic conditions in each have been carefully studied and the findings recorded. These have shown that:

1. Unequal development of the ligaments does occur and lateral version of the uterus follows; this I believe to be due either to torsion of the ligament from defective technic, or to unequal primary development, present but unnoticed at the time of the operation.

2. Enlarged ovaries slung over the encircling band formed by the round ligaments fall lower in the pelvis by elongation of the utero-ovarian ligament and become adherent. These ovaries (Fig. 6) have been cystic (mycrocystic).

3. The sigmoid is apt to become adherent to the ligamentous loops.

4. The ligaments passed behind the uterus may become edematous from constriction and offer an inflammatory surface for intestinal adhesion.

5. When the uterus is large and sinks in the encircling loop, the ovaries are thrown upward and inward and become adherent to one another behind the uterus, forming a sensitive mass; these findings have been constant in the cases reopened; hence we would judge that some of this pathology is a cause in many unrelieved patients.

In thirty-two patients the uterus has relapsed and was found retroverted and prolapsed, carrying the ovaries with it.

Thirty are wearing pessaries.

Eighteen have not been benefited in any way.

Ten have lateral versions of the uterus and complain of pain in the side toward which the fundus is drawn.

Sixteen have prolapsed and cystic ovaries.

Two women have ovaries lying anterior to the broad ligament.

Twenty-six have had thrombosis of the pelvic veins, which has extended to the femoral and saphenous, which gives a morbidity larger than we have had from any other intra-abdominal operation.

Twenty women have had children subsequent to the operation.

Twenty-two have aborted, making in all forty-two pregnancies from which to make observations. No complication of labor has been recorded; only one delivery has required forceps.

Fourteen of the women becoming pregnant have had great pain and discomfort during the first trimester; only four of our relapses have followed labor.

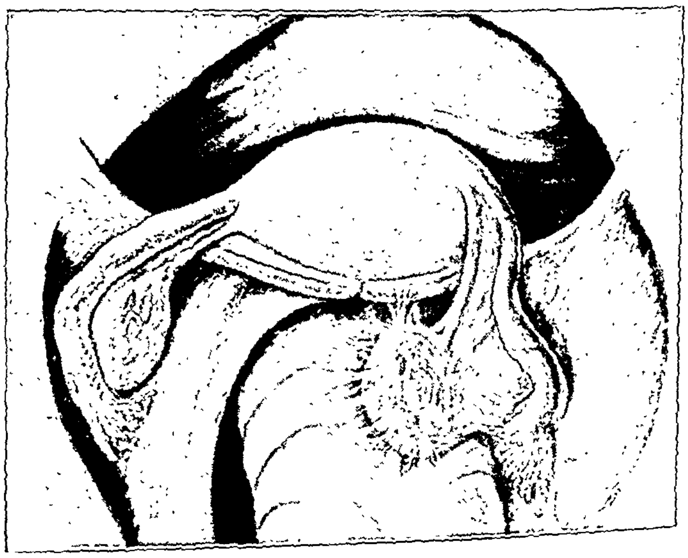


Fig. 6.—Further elongation of the utero-ovarian ligament due to enlarged ovary.

CONCLUSION

From these observations it would seem that the Baldy-Webster operation has a definite field of usefulness in properly selected cases of retrodeviation of the uterus when intra-abdominal shortening of the round ligaments is employed. It should not be selected for heavy uteri with the cervix in the axis of the vagina. Its success depends on a small uterus, a cervix pointing backward, equally developed ligaments and a careful technic.

287 Clinton Avenue.

ABSTRACT OF DISCUSSION

Dr. Edward Reynolds, Boston: The Webster-Baldy operation is, I think, the best of the round-ligament operations, but I think that there is a word more to be said. Dr. Polak has told us that the normal position of the uterus is maintained by the harmonious action of all its supports. A very important corollary is that, in the majority of cases of retroversion, the condition is due primarily to the existence of a tendency toward retroversion due to the inharmonious action caused by an unequal development of those ligaments. The uterus is an organ which is suspended, and when it retroverts it revolves about a point which is approximately the attachment of the bases of the broad ligaments where the uterine arches approach the cervix. A band formed by the anterior attachments draws the cervix forward and down, while the uterosacral muscular structures lift the cervix upward and backward. If the Webster-Baldy or any other round ligament operation is applied to a case of this kind an anteflexion of the fundus is created in addition to the anteflexion of the cervix. Dr. Somers has told us that the only expedient he can see is to shorten the uterosacral ligaments and pull the cervix upward and backward. That operation has been before the profession for many years and has not met with much favor because it is an incorrect procedure. For six years or more I have been doing an operation which I believe is a much better procedure. I make a transverse incision through the uterovaginal plate, extending through the whole thickness of the anterior vaginal wall in front of the cervix and large enough to admit a finger. I pass the finger in and separate the bladder from the anterior surface of the cervix and then break up the connective tissue and muscular tissue which we call the vesico-uterine ligaments, leaving the cervix free from all the attachments which drag it forward and downward. I then bring the incision together with transverse sutures. With the Webster-Baldy operation I bring the fundus forward, and the uterosacral ligaments lift the cervix backward.

Dr. R. S. Yarros, Chicago: I have watched the Webster-Baldy operation as done by one of its originators for several years, and I have seen more bad results from this one operation than from almost any other. In several cases I saw all the complications that Dr. Polak mentions. One of the cases, if I remember correctly, had three of the complications. It was a simple case of retroversion, with a slightly enlarged uterus and an enlarged ovary. The operation was done and part of the ovary removed. Two years afterward the woman was operated on and it was most difficult to separate the uterus from the bladder. The result was a hysterectomy. Two other patients had to be operated on within two years, not only for discomfort, but for severe pains.

I have come to the conclusion that it is a mistake to displace the anatomic relations. The Webster-Baldy operation seems to me a fundamental mistake, unless it is done as guardedly as Dr. Polak suggests. First, however, how is it possible to measure the ligaments and say that they are equal? If one is clever enough to forestall all these points no doubt the operation has a place. I am sorry that Dr. Webster is not here himself to say all the good things in favor of the method, for Dr. Polak certainly did not say many things in its favor.

Dr. C. W. Barrett, Chicago: We are indebted to Dr. Polak for so honestly reporting such unfavorable results. His results have shown the evils of the operations which were pointed out theoretically a long time ago. There has been some question for a number of years whether the operation should be called the Webster or the Baldy operation. As a matter of fact, Dr. Baldy has about as much right to have his name attached to this operation as Cook has a right to claim the discovery of the North Pole. There is no reason why the operation described by Dr. Webster should be called the Webster-Baldy operation.

It seems to me that these reports in regard to the ill-advisedness of this operation should be convincing to the most skeptical individual. An abdominal operation must be safe and simple; it must allow inspection of the contents of the abdomen; all of these requirements this operation does to a certain extent fulfil, except that of safety. Then it must use natural ligaments instead of false ligaments and must use the strongest part of the round ligament. The round ligament grows smaller and smaller toward the internal ring, and any operation that throws out the two-thirds of the anterior portion of the ligament throws out the very best part of the ligament we have for holding the uterus forward.

Dr. J. O. Polak, New York: This discussion has brought out just what I had hoped it would bring out—the results of some of the other observers. I felt that perhaps my results were due to faulty technic or a misconception of the principles of the operation, but they have been reported to you fairly. Dr. Reynolds made the point that anomalies of the uterus, such as the deep posterior invagination of the cervix, complicate retroversion work. We have found that no retroversion operation will cure patients of this class permanently, unless the cervix is placed and held backward toward the sacrum. I brought this point out some six years ago in a paper which I presented to the American Gynecological Society on the result of suspension of the uterus. It was only by the use of a pessary immediately after our suspension operations were done that we were able to present such excellent results in restoration of the uterus—results not obtained by other men with this operation. This was not because of the technic, but because we recognized that the cervix must be kept backward, and that, if this was done, the fundus would be maintained forward by intra-abdominal pressure. The pessary in a large number of cases did this mechanical act.

I am sorry that I gave the impression that I have condemned the Webster-Baldy operation. I have not. I am still using it occasionally, but am selecting the cases. These four hundred cases include all degrees of retroversion. We were doing the Webster-Baldy operation on the cases in which we removed a tube or an ovary or in which we were doing straight retroversion work. We are now selecting for this operation the small uterus with well-developed round ligaments, with few, if any, varicosities in the broad ligaments, and with a cervix that is not congenitally anteflexed.

IS MEMBRANOUS DYSMENORRHEA CAUSED BY ENDOMETRITIS *

K. I. SANES, M.D.
PITTSBURGH, PA.

In this paper I shall use the term "menstrual membrane" instead of membranous dysmenorrhea because we are interested in all the membranes passed during the menstrual period, and since not all are accompanied by pain, the term "membranous dysmenorrhea" cannot cover them all. I shall use the term "membranous dysmenorrhea" only when I wish to convey the idea of a membrane passed with pain. Before taking up the question of the relation of the menstrual membrane to endometritis, it is essential to consider the histology of the endometrium.

HISTOLOGY OF ENDOMETRIUM

The description of the endometrium as given by the anatomists is not uniform. In the old description the endometrium was considered as a definite and unchangeable structure. The picture of the endometrium most commonly met was considered to be the normal one and any deviation from it was looked on as pathologic.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Milnes Marshall[1] and Heape,[2] independently of each other, reported a classification of the endometrial changes during the menstrual cycle and thus gave us a better understanding of the endometrial structure. They divided the cycle of twenty-eight days into four periods: The period of construction (about five days), the period of destruction (about four days), the period of regeneration (about seven days), the period of quiescence (about twelve days), and described the well-defined changes normally noticeable in the endometrium in each of these different stages. They thus widened the range of the endometrial changes within the physiologic limits and gave us a more accurate description of the endometrium. My description will be based on this classification, but for the purpose of this paper it will be sufficient to describe the endometrium during the quiescent stage and then give its changes during the construction (premenstrual) and destruction (menstrual) stages.

THE ENDOMETRIUM IN THE QUIESCENT STAGE

During the quiescent stage, the epithelial cells lining the surface of the mucosa and glands show considerable differences in their shape, size and nuclei. (The superficial epithelial cells are more cuboidal and somewhat smaller than the glandular ones).

The glands during the quiescent stage appear straight or slightly tortuous and are situated in regular and almost parallel rows. Their distance from each other is given by Winters[3] as from two to two and a half transverse diameters of a gland and by Gebhard[4] as from four to five. The size of the glandular lumen is given by Winter as from a half to one cell in width. Each gland is surrounded by a network of spindle-shaped connective-tissue elements, and outside of it by the stroma. (The same spindle-shaped cells are noticed in the neighborhood of vessels and in the deeper layers of the mucous membrane.)

The stroma during this stage appears to be a soft, somewhat mobile protoplasmic mass, imperfectly differentiated into cells. These cells anastomose freely with one another by means of protoplasmic processes closing in the small lymph cavities. They present many and varying alterations in shape, and can readily be displaced by fluid or blood (James Young[5]). At its uppermost layer the stroma cells are arranged parallel to the surface, forming a kind of basement membrane. During this stage there is no mitosis. The blood-supply of the superficial portion of the mucosa consists of capillaries running parallel to the surface epithelium without any specialized supporting coats; James Young[5] and Heape[2] consider the intima and the media of the vessels as consisting of the ordinary flattened cells, and the capillaries as simple blood-tracks through the protoplasmic mass.

THE PREMENSTRUAL OR CONSTRUCTIVE STAGE

During the constructive stage there gradually develops a pronounced serous infiltration of the upper layer of the mucosa. This infiltration or edema has been recognized by Leopold,[6] Westpholen,[7] Young,[5] Hitchman[8] and Meerdervoort.[9] It is ascribed by Young to changes in the stroma cells associated with the liberation of a crystalloidal element. "This crystalloidal element brings about an osmotic pressure discrepancy between the protoplasm of the stroma and the blood in the vessels, to readjust which an outflow of fluid takes place from the lumen of the vessels into the intima and stroma cells." As a result of this process, the intercellular spaces become saturated with the fluid transuded from the vessels, and the perinuclear protoplasm of the stroma cells becomes transformed into a number of fluid spaces bounded by the displaced and thinned-out cytoplasm. The borders of these swollen cells according to Westpholen become indistinct and their nuclei paler, rounder and more central.[7] "It is very possible," says Young,[5] "that the network of previous writers in reality corresponds to these spaces in the protoplasm enclosing the fluid actively imbibed." In addition to these changes in the stroma cells themselves, round-cell infiltration and capillary congestion constitute a characteristic feature of the stroma during this stage.

The changes in the glands are also characteristic. They assume a more tortuous appearance, they dilate often from ten to twenty times their size and their interspaces become greatly lessened. (Westpholen[7]). The epithelial lining of the glands undergoes edematous changes similar to those seen in the stroma. The cells are somewhat lower, their outline less distinct and their nuclei paler. The walls of the glands show in places clusters of epithelial cells (papillary processes). Their lumina become filled with mucus and in some places also with leukocytes and red cells. These glandular structures are found only in the deep layers of the mucosa. The superficial layer is rather poor in glands. We therefore have normally in the premenstrual stage two layers in the endometrium; the lower or spongy one, and the upper or compact one (Hitchman[8]).

THE DESTRUCTIVE STAGE OF MENSTRUATION

We see then that before the beginning of menstruation the endometrium presents an edematous stroma of almost jelly-like consistence with wide capillary tracks running through it, and that it then consists of two layers, a deep spongy one and a superficial compact one.[10] With the approach of menstruation the arterial congestion leads to the dilatation of the superficial capillary tracts, and under increased vascular pressure and the condition of the intima and stroma described before, an emigration of red cells from the capillary tract takes place. Whether it is a simple mechanical leakage or, as Young suggests, "an active dragging out of the cells" by the same force that determines the edema, is, of course, difficult at present to say. Whatever the force may be, the red cells either enter the stroma, and pushing it aside form lacunae, or they find their way through the edematous stroma into the lumina of the dilated glands. In either way, the blood can reach the uterine cavity; in the first case, through the displaceable stroma and surface epithelium, and in the second case, through the glandular openings.

A point of great importance in connection with our subject is whether any endometrial tissue is carried away with the blood. On this point there are contradictory opinions. Sir J. Williams (in 1877), von Kahlden (in 1889), Wyder (in 1887), and Wendeler, (in 1895), basing conclusions on necropsies (deaths during menstruation) found extensive denudations of the endometrium; Heape,[8] and Wyder and Gelabin,[11] examining menstrual discharges, found in them uterine epithelial cells and shreds of stroma tissue; Westpholen[7] and Lohlein, from studies of curetted material, came to the conclusion that epithelium and stroma are exfoliated to a slight extent; De Sinety, Moricke, W. Williams and Jacob[11] state that the endometrium is not denuded at all; and Gebhard, while not denying any exfoliation of stroma, admits exfoliation of epithelium. Now, contradictory as these observations appear, they meet the view of Meedervoort[9] and Mandl[12] who assert that the extent to which the mucosa is destroyed varies within wide limits in different persons and even in the same persons in different periods of life.

---

[1] Marshall, Milnes: Vertebrate Embryology, London, 1893.

[2] Heape, M. A.: The Menstruation of Semnopithecus Entellus, University, Cambridge (Balfour Student), Proc. Roy. Soc., 1893, liv.

[3] Winter, George, and Ruge, C.: Text-Book of Gynecologic Diagnosis, edited by John G. Clark.

[4] Gebhard: Referred to by Hitchman, F., and Adler, L.: Die Lehre von der Endometritis, Ztschr. f. Geburtsh. u. Gynäk., 1907, vol. xl.

[5] Young, James: The Structure of the Stroma of Endometrium and Its Bearing on the Menstrual Changes, Brit. Med. Jour., Oct. 22, 1910.

[6] Leopold: Membranous Dysmenorrhea, Arch. f. Gynäk., June, 1876.

[7] Westpholen: Referred to by Marshall, Milnes: Vertebrate Embryology, London, 1893.

[8] Hitchman, F., and Adler, K.: Die Lehre von der Endometritis, Ztschr. f. Geburtsh. u. Gynäk., 1907, vol. xl.

[9] Meerdervoort: Die normale and menstruirende Gebarmütterschleimhaut, Inaug. Dissert., Freiburg, 1895.

[10] Ruge makes the same division in his description of endometritis glandularis hypertrophica which Hitchman asserts is nothing more than the premenstrual physiologic condition of the endometrium.

MECHANICAL DENUDATION

How can the denudation be explained? What is the mechanism of the separation of endometrial tissue from a menstruating uterus? To this question different answers are given; but it is generally ascribed to the extravasation of blood in the spongy layer with a condition present in the compact layer preventing the free outflow of blood through it. The easily displaceable spongy layer offers no resistance, the blood accumulates there and by its pressure displaces and dissects the softened edematous stroma and the dilated edematous glands. The portions of endometrium thus loosened are expelled under the influence of the uterine contractions during menstruations.[13]

THE DESCRIPTION OF MENSTRUAL MEMBRANE

Menstrual membranes vary a great deal in their macroscopic and microscopic appearances. Different pieces of membrane from the same person at the same periods may present strikingly different pictures. I shall not discuss here the macroscopic appearances of the membranes, as it does not come within the scope of my subject; microscopically the membranes show signs of degeneration varying from a mildly hydropic appearance of the cells to a complete coagulation necrosis when it becomes a fibrinous membrane. Some authors do not consider the fibrinous membrane as an exfoliated endometrial membrane, but fibrinous membranes and exfoliated endometrial membranes may pass at one and the same time and a single section made of a menstrual membrane may show the pictures of both. I may therefore justly state that it is impossible to separate the two varieties anatomically, especially if we remember that there are many transitional forms between them, and I shall consider, therefore, the fibrinous casts as a form of menstrual membrane.

The fibrinous membranes consist mostly of fibrin intermingled with blood, round and polymorphonuclear cells. The membrane may be so degenerated that only by repeated examinations of sections can one find a necrotic outline of glandular and vascular structures. Occasionally, however, in these fibrinous membranes, especially at the area of its separation, endometrial tissue of definite structure may be seen.

The membranes that are not entirely necrotic present such a variety of microscopic pictures that it is hardly possible to describe them all. They may consist chiefly of stroma with glands few and far apart, or they may consist chiefly of glands with but little interglandular tissue. The cells of the stroma may be necrotic, may assume a decidua-like appearance, may be slightly edematous or even normal; they may be thickly set or widely separated by an exudate. The stroma may be studded with red cells, round polynuclear cells, and occasionally with plasma cells. Fibrin is usually found in the stroma and clasmatocytes are not rarely encountered. The glandular tissue presents no less variety in structure. The glands may be small or very much dilated; they may be straight or tortuous; their epithelium may be normal or present different degrees of degeneration; their lumina may be filled only with mucus or may show also accumulations of different cells (red, round polymorphonuclear cells). They may be found completely isolated from the stroma or may be closely surrounded by it. They may lie near and even touch each other or may be widely separated.

A feature noticed by von Franque, Hager and Meyer and described as a "budding" of the interglandular tissue is sometimes met in the membranes. It is a compact mass of stroma cells in which growth is more active and which penetrates through the loose stroma cells in different directions.

In a general way we may state that in the menstrual membrane we see the premenstrual pictures of the upper layer of the endometrium in the different degrees of its degeneration.

IS THE MEMBRANE A RESULT OF INFLAMMATION?

The present general opinion is that the cause of menstrual membrane is an endometritis (Gottschalk,[14] Leopold,[6] Grechen,[15] Wyder,[16] Morse,[17] Beigel,[18] Kleinwachter,[18] Lohlein,[11] Kustner,[19] A. Martin[20] and Kelly and Noble.[21] But why ascribe the exfoliation of the membrane to the inflammation of the endometrium? Does any one assert that the menstrual membrane is a symptom of endometritis? Is there any clinical and histologic evidence to prove it?

Clinically, there are no intermenstrual symptoms characteristic of passing menstrual membranes, nor are the symptoms of endometritis necessarily present in such cases. Kollman[22] found no such symptoms in twenty-four membranous cases that he examined. On the other hand, membranous dysmenorrhea is not infrequently hereditary (Sireday, Beigel, Tilt, Brouardel, Duplan and Huchard.) and is occasionally associated with the passage of membranes from other organs such as the vagina (Huchar, J. Williams, Guyenot,[22] Hogan[23] and Leopold[6]), and rectum (Cohnstein,[24] Gauthier and Bordier[22]), and even with skin desquamation. Such clinical facts do not speak in favor of the dependence of membranous dysmenorrhea on endometritis.

---

[11] Referred to by Schaeffer, R.: Veit's Handbuch der Gynecologie, iii

[12] Mandl: Beitrag zur Frage des Verhaltens der Uterusmucosa während der menstruation, Arch. f. Gynäk., 1896, iii.

[13] Kollman (Schein, S. A., Zur Anatomy der Endometritis exfoliativa menstrualis nebst Klinischen Anhang, Arch. f. Gynäk., 1906, lxxx) goes a little further. He asserts that the extravasated blood in the deep layer deposits between the separated endometrium and the uterine wall a fibrin which, together with a leukocyte infiltration, gives rise to a membrane analogous to sequestrum formation.

[14] Gottschalk: Die Balneotherapie bei Menstruationstörungen; abstr., Med. Klin., Berlin, March, 1910.

[15] Grechen, M.: Membranous Dysmenorrhea, Gynäkologische Studien und Erfahrungen, Berlin, 1888.

[16] Wyder: Referred to by Mandl (see Footnote 12).

[17] Morse, Elizabeth: Membranous Dysmenorrhea, Rep. 191, Johns Hopkins Hosp., February, 1907.

[18] Referred to by Schein (see reference in Footnote 13).

[19] Kustner, Otto: Lehrbuch der Gynecologie, 1904.

[20] Martin, A.: Pathologie und Therapie der Frauenkrankheiten, p. 62.

[21] Kelly and Noble: Operative Gynecology and Abdominal Surgery.

[22] Referred to by Cohnstein: Ueber vaginitis exfoliativa und dysm. membranacea, Arch. f. Gynäk., Berlin, 1881, vol. xvii.

[23] Hogan, G., and Hogan, E. F.: Zur Pathologie and Therapie der Dysmenorrhea Membranacea, Arch. f. Gynäk., 1876, No. 10.

[24] Cohnstein: Ueber vaginitis exfoliativa und dysm. membranacea, Arch. f. Gynäk., Berlin, 1881, vol. xvii.

Nor are there any histologic proofs for such a dependence. Of sixty-two cases of menstrual membranes collected by Cohnstein,[24] forty-two cases, or 68 per cent., showed no disease of the sexual organs. Thomas, Mayer, Scanzoni and Solowieff[22] reported cases of membranous dysmenorrhea without evidences of diseased sexual organs. Schaeffer[25] did not find endometritis in the mucosa obtained during the intermenstrual period in such cases. Even Leopold, who is in favor of the inflammatory etiology of the menstrual membranes and approves of the name "endometritis exfoliativa," says,[6] "It is worthy of note that the membranes described as exfoliative endometritis when examined are found to be normal."

Of course there is no reason why an endometritic uterus could not expel a menstrual membrane. There is no reason why *intermenstrual curettage of a patient* passing menstrual membranes could not show an endometritis, but this does not prove that an endometritis causes the menstrual membranes, for as H. Meyer[26] justly states, "even if the mucous membrane is found to in a state of chronic inflammation, its findings do not vays agree with those of the expelled menstrual memrane."

But does not the menstrual membrane itself present an inflammatory picture? Of course it does; but this picture is found normally in the endometrium at the end of its premenstrual stage. The edema of interglandular stroma, the dilated vessels, the exudate, the round-cell infiltration, the dilatation and proliferation of glands may be and has been considered features of inflammatory processes (an endometritis), but such hanges must be considered physiologic in the premenstrual period and, therefore, cannot be considered inflammatory in the menstrual membrane. For if the picture of menstrual membrane could prove an endometritis, then all menstruating uteri have endometritis.

MENSTRUAL MEMBRANES IN MONKEYS

In this connection it is important to call attention to the description of the endometrial changes during the four stages of the menstrual cycle in monkeys—*Semnopithecus entellus* and *Macacus rhesus* as given by M. A. Heape,[2] and *Cercocebus cynomolgus,* as given by Van Herwerden.[27] Space will not permit me to quote their description; suffice it to say that it is similar to that of the endometrial changes in the human female. In the monkeys the degenerative stage is always accompanied by the passage of a menstrual membrane. "The uterine epithelium," says Heape, "and the superficial stroma shrivel up and exhibit signs of degeneration, the epithelium ruptures and the blood contained in the lacunae is poured into the uterine cavity. Denudation follows. All the uterine epithelium, a portion of the glands and in some places whole glands and a depth of about one-third of stroma are cast away with the ruptured vessels, red corpuscles and leukocytes. Of these substances, the menstrual clot is formed." A menstrual membrane then always accompanies the menstruation of monkeys. Are we then to attribute this menstrual membrane in monkeys to an inflammation? Have all the monkeys endometritis? If the passage of the menstrual membrane in monkeys must be admitted to be physiologic, why must we consider it in the human female as dependent on endometritis? Is it because it is rare in the human female? But is it rare?

THE FREQUENCY OF MENSTRUAL MEMBRANE

The passage of membranous tissue is a great deal commoner than it is usually supposed. While MacNaughton Jones,[28] Grechen,[15] Stevens,[29] Lockhart[30] and many others consider it a rare form of dysmenorrhea, John Williams, Scazoni, Oscar Frankl,[31] von Franque, E. G. Herman,[32] Norris[33] and others consider it of very frequent occurrence. If we were in the habit of carefully examining the clots for shreds our idea of the frequency of menstrual membranes would be different. It should be remembered that membranes are most frequently passed as clots; that it is difficult to separate them from clots, and that in case of fibrinous membranes, they are often overlooked even on microscopic examinations. Again, the passage of membranes is not always accompanied by pain, and therefore more membranes are passed than membranous dysmenorrhea would indicate. Within the last three months, I saw and had sectioned in my practice six menstrual membranes.

DYSMENORRHEA WITH THE MENSTRUAL MEMBRANES

Because of the fact that clinically we have opportunities to observe only patients in whom the passage of menstrual membranes is accompanied by severe pain, we become accustomed to the association of the idea of menstrual membranes with that of dysmenorrhea (membranous dysmenorrhea). Now, dysmenorrhea, in general, is common in our women, and if the menstrual membranes are as common as we believe them to be, there can be no reason why dysmenorrhea should not accompany the passage of membrane in a percentage of cases. But the dysmenorrhea accompanying the passage of membrane in such cases may be dependent on conditions other than the passage of membrane itself. C. E. Herman asserts that it is never caused by the membrane *per se.* Patients, like the one of Gibbon's,[35] who sought his advice because the complete uterine cast was larger than the ones painlessly passed by her monthly before, confirm Herman's view. If we can, as we justly believe we can, dissociate the dysmenorrhea from the passage of menstrual membrane, we take away a great deal of its pathologic aspect.

IS STERILITY COMMON?

But how about sterility? Is it not commonly met among women passing menstrual membranes? And if it is, does it not suggest the pathologic origin of the menstrual membrane? We surely cannot call normal a condition which interferes with the functions of an organ. To answer this question we must again bear in mind the frequency with which menstrual membranes are encountered. Not only is the great army of women that pass menstrual clots with or without pain fertile, but even in the bad cases commonly recognized as cases of membranous dysmenorrhea, the women are not absolutely sterile. Solowieff, Fordyce Barnes, Thomas,[36] Lohlein,[18] von Franque, Schaeffer, Kleinwachter, Championon, Henwig and Bordier reported pregnancies in

---

25. Schaeffer: Veit's Handbuch d. Gynäk., vol. iii.

26. Meyer, H.: Zur pathologischen Anatomie der dysmenorrhea membranacea, Arch. f. Gynäk., 1887.

27. Van Herwerden: The Physiology of Reproduction, p. 96.

28. Jones, H. MacNaughton: Membranous Dysmenorrhea, Practical Manual of Diseases of Women, ed. 9, 1905.

29. Stevens, T. G.: Dysmenorrhea, *Clin. Jour.,* Aug. 11, 1909.

30. Lockhart: Treatment of Dysmenorrhea, Montreal Med. Jour., 1896-1897.

31. Frankl and Scroggs: A Case of Decidual Expulsion Occurring at Each Menstrual Period, Am. Jour. Obst., 1909, lx.

32. Herman, Ernest G.: Dysmenorrhea, Brit. Med. Jour., 1909, i.

33. Norris, C. C., and Barnard, E. P.: Dysmenorrhea in Nulliparous Women without Gross Local Pathologic Lesions, Am. Jour. Obst., 1910, vol. lxi.

34. These cases will be reported in another article.

35. Gibbons, R. A.: A Lecture on Dysmenorrhea, Brit. Med. Jour., 1910.

36. Thomas, referred to by Kisch, H.: Das Geschlechtsleben der Weibes, 1904, p. 573.

women suffering from membranous dysmenorrhea. Fritsch goes so far as to say that membranous dysmenorrhea not only does not cause sterility but does not even favor abortion. While the percentage of sterility may be high, if only the bad cases of membranous dysmenorrhea that come to the physician's notice are taken into consideration, it would unquestionably be found to be low if we could include in our statistics all the patients who pass menstrual membranes. It should not be forgotten that among the sterile women that we treat, only a small percentage gives a history of expelling menstrual membranes.

From all that has been said before, I feel justified in concluding that the menstrual membrane is commonly encountered, that it is not the result of an inflammatory condition of the endometrium, and that taking its frequency into consideration it is not accompanied by a high percentage of pelvic pathology and sterility.

OVARIAN HORMONES

What causes the difference in size and extent of the exfoliation of the endometrium? May it not depend on the degree of intensity of the active agent of menstruation and possibly also on the degree of sensitiveness of the endometrium to the agent? Our knowledge on this subject is far from complete. It is generally admitted that the stimulus for menstruation is ovarian in origin. Up to date, the part of the ovary which produces this stimulus is not known. The corpus luteum, the connective tissue and, lately, the parovarium (Bucura[37]) have been suggested as the active part in ovarian internal secretion.

The work of Krauer, Halban, Pfleiger, Morris and others suggested the view that as a result of the periodic function of the ovary, a substance is produced which, when carried through the circulation, induces the uterine changes necessary for menstruation and pregnancy. According to A. L. McIlroy[38] and K. I. Korovitsky,[39] these biochemical substances are hormones secreted by the ovaries and carried by the blood to the endometrium, where it sets up by its irritation, such changes as congestion, cell proliferation, edema and even tissue necrosis. It is possible that the degree of intensity of this hormone decides the intensity of the menstrual process; that is, the more active the hormone and the more susceptible the endometrium the more extensive and the more destructive are the uterine changes. If, then, supposing that the hormones are insufficient to call forth in the uterine stroma the necessary amount of crystalloid material for induction of the edema, might not the superficial layer remain insufficiently edematous to allow the blood to break through it? On the other hand, if the hormones are excessive or the mucosa too sensitive to them might they not induce destructive changes in the cells calling out fibrin formation or coagulation necrosis? In either case the blood cannot pass through the hardened mucosa and, accumulating in the spongy layer, may cause exfoliation of part or the whole of the upper compact layer.

May it not, therefore, be that the normal menstruation, with the slight superficial shedding of epithelium and the exfoliation of endometrial shreds or membranes, are the results of the same normal process, the difference being due to the variable degree of intensiveness of the stimulant action of the hormones?

Jenkin's Building.

ABSTRACT OF DISCUSSION

DR. ROBERT T. FRANK, New York: The main question concerning membranous dysmenorrhea centers on the pathology, because the treatment is largely dependent on that. If it is an inflammatory condition, we must treat it accordingly. If purely an exaggerated physiologic function, we are probably more powerless than in the other case. I agree more or less with Dr. Sanes in the view that in some instances it is congenital. So far as treatment is concerned, in such instances we are powerless, although lately I have seen one case in which the nasal treatment has been followed by the disappearance of the dysmenorrheic membrane. How the cauterization of the nasal membrane acts on the membranous dysmenorrhea I do not know, and we are no nearer solving the question of the cause of the condition.

DR. HENRY O. MARCY, Boston: I am surprised that the great work of Prof. G. B. Ercolarri of Bologna, Italy, on "The Reproductive Processes in Man and Animals," has not been referred to. This I translated; the last edition in 1884. The utricula glands of the uterus perform a special normal function. Menstruation is putting the house in order for the little tenant, who may never arrive. The woman would not be reproductive were it not for the changes that go on in the shedding to the very base of the utricular glands. This new endometrium is the most important factor in reproduction. In endometritis we have the most favorable condition for bacterial development and pathology of the reproductive organs.

DR. G. GELLHORN, St. Louis: On microscopic examination, the casts of membranous dysmenorrhea hardly ever show inflammatory changes. For this reason, curettage, as a rule, is of no avail, and the condition is, indeed, usually incurable by the ordinary means. My studies of syphilis of the uterus make me feel that a certain percentage, at least, of cases of membranous dysmenorrhea is due to tertiary syphilis. I believe that in all such cases a trial with mercury and potassium iodid should be made before resorting to curettage.

DR. K. I. SANES, Pittsburgh, Pa.: Hysteria is given by most of the authorities as the most important etiologic factor. Of the six cases of membranous dysmenorrhea that came under my observation, five were hysterical. Syphilis and tuberculosis are mentioned as causes by a great many authors. Inflammation is frequently given as a cause of membranous dysmenorrhea, because the picture of glandular endometritis is found in the premenstrual uterine mucosa in patients with membranous dysmenorrhea. I do not know how much reliance is to be placed on Hitchman's statement, but, after extensive study of endometritis, he came to the conclusion that so-called glandular endometritis is a normal condition of the uterine mucosa in the premenstrual stage. In patients curetted a few days before menstruation, we obtained this glandular structure. In this connection it may be interesting to note that in a case of membranous dysmenorrhea in which we curetted two days before menstruation the scrapings showed stroma and the glands completely degenerated thus resembling the fibrinous membrane the patient had been passing monthly.

---

[37] Bucura, referred to by Biedl, Arthur: Internal Secretory Organs.

[38] McIlroy, A. L.: Proc. Roy. Soc. Med. Jour., July, 1912.

[39] Korovitsky, K. I.: Ruski Vratch, Oct. 13, 1912.

The Irrepressible Antivaccinationist.—With the antivaccination faddist and fanatic the case is altogether different. He is a crank on vaccination simply because he did not happen to become a crank on Christian Science or something equally preposterous. On the occurrence of small-pox in a town he immediately begins his campaign of misrepresentation. He endeavors to stir up disquiet and alarm by long columns in the press on the alleged dangers of vaccination. Forgetting that the health officer is a public servant, paid to carry out the law irrespective of his personal convictions or inclinations, Mr. Antivaccinationist scarcely ever forgets to make his attack on vaccination degenerate into personalities against that official. Such attacks are at times not only contemptible, but insulting. Occasionally these pseudoscientists flood the mailbags and molest the front doors of respectable citizens with printed matter as truthful and reliable as the advertisements of Peruna or Wizard Oil.—James Roberts, M. D. in *Pub. Health Jour.*

RADIUM IN INTERNAL MEDICINE

ITS PHYSIOLOGIC AND PHARMACOLOGIC EFFECTS [*]

L. G. ROWNTREE, M.D.
AND
W. A. BAETJER, M.D.
BALTIMORE

Considerable has already been learned concerning the effects exerted by radium in its many forms on various physiologic and pathologic processes and conditions. Sufficient data, however, are not at hand to make this chapter in any way complete. Much more evidence is necessary before the findings of certain investigators can be considered properly established, while in other directions entire spheres of its influence are probably overlooked in our at present early acquaintance with radium and its activity. The briefest outline of the theories, facts and data as they appear in the literature relating to radium in internal medicine are here presented.

Uric Acid Metabolism.—Gudzent asserts that the lactim form of monosodium urate (the form present in gout) is converted *in vitro* by radium into the more soluble tautomeric or isomeric lactam form which in turn is broken up into ammonia and carbon dioxid. Neither Lazarus nor Wiechowski was able to substantiate his, Lazarus holding that Gudzent's results were depen-t on *infection of his solution with fungi (Schimmel ze).*

The consensus of opinion is that the use of radium is attended with an increased urinary uric acid output and that disappearance of deposits (tophi or artificial deposits) is hastened. Uric acid disappears from the blood under radium treatment and appropriate diet, and its disappearance is frequently associated with subjective improvement. Grave doubt still exists, however, as to the mechanism whereby the undoubted therapeutic results in gout are accomplished.

Vasomotor Changes.—Loewy and Plesch have shown that the majority of patients treated in the emanatorium show a decrease in maximal blood-pressure which may be as great as from 20 to 25 mm. Hg. Decrease in minimal and mean pressures are usually associated, and the heart work is decreased. The decreased blood-pressure is ascribed, however, primarily to vascular changes. The sleep-inducing influence of emanatorium treatment first described by Furstenberg, is ascribed by Loewy to cerebral vasomotor changes.

Effect on Blood-Pictures.—A temporary fall in the number of red cells was encountered by Noorden and Falta, but an outspoken increase which may last over weeks is described by Zehner and Brill.

A temporary but considerable leukocytosis occurs after the first sitting in the emanatorium, the mononuclears being relatively increased, while long-continued treatment leads to leukopenia. In acute febrile diseases associated with leukocytosis, an increase in the white cells is sometimes encountered, but a decrease is more frequent. In leukemia long-continued use of radium has failed to decrease materially the number of white cells.

General Metabolism.—The work of Silbergleit and of Kikoji, using the Zuntz-Geppert apparatus, indicates that radium has a definite and outspoken effect in increasing the volume of air breathed, the oxygen consumed and carbon dioxid expired, and in raising the respiratory quotient, and hence that it increases total metabolism. Loewy and Plesch failed to find these results, but they worked on only one case.

Blood Coagulation.—Von de Veldon asserts that radium emanation administered in any way exerts a definite accelerating influence on the coagulation of blood. Hoffmann corroborates this.

Effect of Radium on Ferment Activity.—It is asserted that an activating influence is exerted on pepsin (Bergell and Beckel), on pancreatin (Braunstein and Bergell), on rennin (Richet), on autolytic ferments (Neuberg, Wohlgemuth, Lowenthal and Edelstein) and on tyrosinase (Wilcox). An almost constant accelerating influence on diastase was noted by Lowenthal and Wohlgemuth. Occasionally, however, a retarding influence was encountered at first.

The evidence of definite activation in all instances is not convincing, and an investigation of its influence on lipase, now being carried out by Marshall and Rowntree, shows no appreciable acceleration.

Other Influences of Minor Importance.—Sweating frequently occurs at the time of the emanatorium treatment and continues throughout the *following night (Noorden and Falta).* The agglutinins to *Bacillus typhosus* and *B. cholerae Asiaticae* were increased, according to Schutze, in animals injected with radium water, in from five to six hours after vaccination. No hemolyzing influence has been described.

Absorption and Excretion of Radium.—Radium emanation administered by inhalation is rapidly carried to all parts of the body and rapidly reaches the concentration in the blood that it has in the air of the emanatorium. It is rapidly excreted by way of the lungs, Kemen finding none in the blood fifteen minutes after the cessation of treatment. Given by mouth it is quickly absorbed by the mucous membrane of the gastrointestinal tract, passed into the blood, distributed to all parts of the body and is excreted rapidly (in from two and one-half to three hours) by the lungs chiefly, only traces escaping in the urine.

The soluble salts of radium are rapidly excreted (four hours), no matter how administered. Injected subcutaneously, they escape (from 60 to 70 per cent.) through the intestines, smaller amounts (10 per cent.) appearing in the urine. The insoluble salts of radium pass through the intestinal canal, not being absorbed at all. Injected they remain at the seat of injection and give off small amounts of radio-activity constantly, the feces becoming radio-active.

METHODS OF ADMINISTRATION AND DOSAGE OF RADIUM EMANATION

As the Bath.—This is the original method since patients for centuries have been "taking the baths" at spas and watering-places. The degree of radio-activity varies in different spas, in the Joachim Valley 600 Mache units, at Carlsbad 90, and at Wiesbaden 10 Mache units per liter, and these all produce results. It is doubtful whether or not radium emanation can penetrate the skin—the good effects are usually considered to result from the inhalation of radium emanation as it constantly escapes from the surface of the water.

As Injection.—Emanation water containing from 500 to 1,000 Mache units to the cubic centimeter is utilized in Noorden's clinic, being injected subcutaneously or intramuscularly in the neighborhood of an involved joint once or twice a week for from ten to twelve injections. No injurious local effects result. This is usually used in conjunction with either the drink cure or emanatorium sittings, and is a valuable addition to treatment.

---

[*] Read in the Section on *Pharmacology* and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[*] A more detailed account of radium, its effects and its value, will be found in separate articles by the authors of this paper in an early number of the Johns Hopkins Hospital Bulletin.

[*] From the Pharmacological Laboratory, Johns Hopkins University, and the Chemical Division of the Medical Clinic, Johns Hopkins Hospital.

As Local Applications—Compresses, Fango Baths.—Lowenthal and Gudzent do not believe that radium emanation can pass through the skin, while Lazarus and Engelmann believe that it can. All admit that the beta and gamma rays of its decomposition products can penetrate the skin. Cotton compresses soaked in radioactive water (from 15,000 to 30,000 Mache units) are commonly used. The fango bath or *Umschlag* is an example of this form of treatment since fango is now known to be radio-active. Local applications should be used in conjunction with general treatment.

As a Drink Cure.—Radium emanation in solution is administered by mouth by varying and increasing doses (330, 1,000, 2,500, 5,000, 10,000 Mache units), repeated three times a day. Lazarus has introduced a sipping cure in which small amounts of radium emanation are drunk many times during the day, thus keeping a certain amount of the emanation constantly present in the body. This method is well adapted for general use.

As Inhalations.—This is the best but also the most expensive method of administration. An emanatorium is used—an air-tight room or cabinet in which the patients are confined and into which radium emanation is introduced, the size depending on the number of patients to be treated (six patients require from 25 to 30 cubic meters of air). The emanatorium is so equipped that the air is kept cool, and the excess of moisture and carbon dioxid removed. The desired number of patients are treated for two hours each day and the treatment repeated every day for weeks or months. The concentration of radium emanation in the contained air varies from 2 to 4 (His) to from 20 to 600 Mache units (average 22) per liter (Noorden). Masks have been introduced in an attempt to do away with the expensive emanatorium.

Reactions in the Course of Treatment.—Often during the first week or two of treatment, sometimes even after the first treatment, an outspoken increase in the subjective and objective manifestations of the disease occurs. This reaction lasts only from a day or two to a week and does not necessitate cessation of treatment. Reduction of dosage, however, may be advisable at times. Its occurrence early in the treatment of rheumatism is a good omen, since these cases usually do better than those not exhibiting the phenomenon. It is occasionally seen also in the treatment of gout but does not carry the same significance here.

Contra-Indications.—Certain authors have warned against the use of radium salts under certain conditions, hemorrhagic diathesis and purpura (Benczur), gastric ulcer (Eichholz), pregnancy (Eichholz), marked neuroses, especially when the vegetative system is involved Norden and Falta), advanced tuberculosis (?) and polycythemia (?). Nephritis was at first considered a contra-indication but cannot now be so considered (Gudzent, Furstenberg).

Indications.—The value of radium is unquestionably established in chronic and subacute arthritis of all kinds (luetic and tuberculous excepted), acute, subacute and chronic joint and muscular rheumatism (so-called), in gout, sciatica, neuralgia, polyneuritis, lumbago and the lancinating pain of tabes. In certain other conditions it is said to be of some value, although more data are necessary before this can be accepted—chronic bronchitis, chronic pharyngitis, pneumonia, myocarditis, arteriosclerosis, vasomotor disturbances, Raynaud's disease, scleroderma, idiopathic enlargement of the lymph-nodes and in chronic constipation.

CLINICAL RESULTS OBTAINED

An effort is here made to classify and bring together the results of all of the cases reported up to August, 1912. In many instances these figures are taken from tables submitted by individual authors, while in others the number of cases together with attempt to estimate the value of the treatment was made from case reports.

Chronic Arthritis and Chronic Rheumatism.—The methods of classifying these cases were so different with different authors that it was considered advisable not to attempt classification but to bring them together under this heading. All grades of severity are included. Great variation as to dosage and methods of administration and duration of treatment existed. No attempt to differentiate these cases is made but it may be stated that, as a rule, the earlier the treatment was begun and the less severe the anatomic changes, the more outspoken was the improvement.

The results in 471 cases as described by twenty-three authors are shown in Table 1. Some improvement was found in 371 cases (78.7 per cent.).

In certain instances arthritis deformans and muscular rheumatism were considered separately, and these are brought together in separate tables and are not considered in Table 1.

TABLE 1.—RESULTS OF RADIUM TREATMENT IN 471 CASES OF CHRONIC RHEUMATISM OR CHRONIC POLYARTHRITIS

Authors	Cases Treated	Improved	Markedly Improved	Practically Cured	No Change	Worse	Undetermined	Dosage
His	100	47	29	5	13	..	6	Small
Falta and Freund	46	8	21	2	15	2	..	Large
Hoffmann	12	..	8	..	..	..	..	.....
Furstenberg	26	6	..	9	11	..	..	.....
Mendel	3	..	..	3	..	..	..	.....
Benczur	18	11	..	5	..	..	..	.....
Laska	4	..	3	..	1	..	..	.....
Kemen	40	14	..	18	8	..	..	.....
Haupt	3	2	..	1	..	..	..	.....
Davidsohn	58	14	..	33	9	2	..	.....
Stern	19	..	16	..	3	..	..	.....
Nagelschmidt	7	..	7	..	..	..	..	.....
Strasser and Selka	8	2	1	4	1	..	..	.....
Frankel	1	..	..	1	..	..	..	.....
Lowenthal	4	1	..	..	..	..	..	.....
Sommer	16	9	..	5	2	..	..	.....
Warburg	6	..	6	..	..	..	..	.....
Strassburger	22	10	7	..	5	..	..	.....
Glaessgen	10	..	..	8	2	..	..	.....
Mayer	18	8	..	5	5	..	..	.....
Jansen	4	2	..	1	1	..	..	.....
Benedikt	44	..	37	..	..	..	..	.....
Kable	2	..	..	2	..	..	..	.....

Arthritis Deformans.—The results in twenty-four cases (Table 2) reported by seven authors show improvement in sixteen. Objective as well as subjective betterment was noted at times.

Muscular Rheumatism.—Acute, subacute and chronic conditions are considered in Table 3. Twenty-seven of forty-nine cases treated by ten authors showed improvement. Many of these cases of chronic arthritis had failed to respond to previous treatment by other methods. The treatment was continuous in some instances over periods of months.

Gout.—According to Gudzent and Brugsch gout is not always easy of recognition. Clinically a study of the uric acid content of the blood should always be made. In health, following five or six days of purin-free diet the blood no longer contains uric acid, whereas in gout the uric acid does not disappear as demonstrated by Gudzent and Apolant's test. Certain cases clinically called chronic arthritis show the same phenomenon, and according to Brugsch are gouty cases though not ordinarily diagnosed as such. Under radium treatment the blood of gouty patients on a purin-poor diet as a rule rapidly becomes free from uric acid. The symptomatic condition improves in association with decrease in blood uric acid according to Gudzent, but is independent of it according to Mendel.

TABLE 2.—RESULTS OF RADIUM TREATMENT IN 24 CASES OF ARTHRITIS DEFORMANS

Authors	Cases Treated	Improved	Practically Cured	No Better
Nagelschmidt	1	..	..	1
Strasser and Selka	3	3	..	..
Noorden and Falta	2	2	..	..
Mendel	1	1	..	..
Kemen	10	6	1	3
Sommer	5	3	..	2
Strassburger	2	..	..	2

TABLE 3.—RESULTS OF RADIUM TREATMENT OF CHRONIC MUSCULAR RHEUMATISM

Authors	Cases Treated	Improved	Markedly Improved	Practically Cured	No Better	Acute	
						Cases Treated	No Better
Sommer	8	5	..	2	1	2	2
Furstenberg	1	..	..	1	..	..	..
Hoffmann	1	..	..	1	..	..	..
Kemen	5	2	..	3	..	..	..
Frankel	1	..	..	1	..	..	..
Davidsohn	32	9	..	19	..	..	..
Stras burger	7	1	4	..	2	..	..
Kable	1	..	1	..	..	..	..
Warburg	..	..	..	..	..	1	1

TABLE 4.—RESULTS OF RADIUM TREATMENT OF GOUT

Authors	Cases Treated	Improved	Markedly Improved	Practically Cured	No Change	Worse
His	28	..	24	..	4	..
Gudzent	50*	..	..	..	..	..
Furstenberg	4	..	4	..	..	..
Kemen	25	11	..	7	7	..
Hoffmann	5	..	5	..	..	..
Mendel	3	..	3	..	..	..
Benczur	1	..	1	..	..	..
Sommer	1	1	..	..	..	..
Strasser and Selka	1	1,1	1	..	..	..
Warburg	22	..	17	..	5	..
Strassburger	12	11	1	..	..	..
Jansen	11	1	8	..	..	..
Kable	2	..	..	2	..	..

* In thirty-seven uric acid disappeared from blood.

In 106 cases by twelve authors eighty-six patients (81 per cent.) are reported as improved, markedly improved or cured. Some of His' patients have been free from symptoms for as long as one year following the last treatment. Joint uric acid deposits and tophi are said to disappear under treatment.

Neuralgia, Sciatica, Lumbago, Neuritis and Polyneuritis.—A large series of cases falling into this group are found in the literature, some clearly, others very poorly, defined. An effort has been made to group them.

Neuralgia, including tic douloureux (Table 5): Of fifty-nine cases treated by fourteen authors forty-seven were improved, and twenty-five practically cured. Tic douloureux usually resisted treatment.

TABLE 5.—RESULTS OF RADIUM TREATMENT IN NEURALGIA

Authors	Cases	Improved	Markedly Improved	Practically Cured	No Better
Furstenberg	2	..	..	2	..
Falta and Freund	4	3	..	1	..
Noorden and Falta	2	..	..	..	..
Mendel	1	..	..	..	1
Benczur	1	..	..	..	1
Sommer	6	3	..	2	1
Neumann	4	2	1	1	..
Stern	5	1	3	..	1
Nagelschmidt	1	..	..	1	..
Neusser	1	1	..	..	..
Glaessgen	5	..	..	5	..
Mayer	21	9	..	7	5
Jansen	2	..	..	..	2
Kable	4	..	..	4	..

Sciatica: The treatment of 115 cases (Table 6) by eighteen different workers resulted in benefit to ninety-one patients (79 per cent.). Some of the cases were of long standing.

TABLE 6.—RESULTS OF RADIUM TREATMENT IN SCIATICA

Authors	Cases Treated	Improved	Markedly Improved	Practically Cured	No Change	Worse	No Return
Falta and Freund	14	..	9	3	2	..	..
Furstenberg	9	1	..	2	6	..	..
Mendel	1	1	..	..	..	..	..
Benczur	6	..	2	..	2	..	..
Kemen	25	8	..	12	5	..	..
Haupt	1	..	..	1	..	..	..
Davidsohn	15	2	..	11	..	1	1
Sommer	2	1	..	1	..	..	..
Neumann	1	1	..	..	..	..	..
Stern	3	..	2	1	..	..	..
Strasser and Selka	8	2	..	5	1	..	..
Frankel	1	..	1	..	..	..	..
Lowenthal	1	..	..	1	..	..	..
Strassburger	8	3	1	..	4	..	..
Glaessgen	8	..	..	7	1	..	..
Jansen	7	1	4	..	..	..	..
Benedikt	9	..	7	..	..	..	..
Kable	1	..	1	..	..	..	..

Lumbago: Five cases are reported by as many authors, considerable benefit occurring in all but one instance.

Polyneuritis: Six cases were treated and benefited by Noorden and Falta and one each by Benczur and Kemen. Sommer and Nagelschmidt saw benefit, each in one case of neuritis, but Strassburger saw none in his three cases.

To recapitulate, 152 cases or 79 per cent. of the 192 cases coming under this heading were benefited by radium treatment.

Tabes Dorsalis.—The lancinating pains were relieved in a large proportion of cases, only temporarily (weeks) in most instances, but over longer periods in some cases. Table 7 shows forty-four cases from six sources in which the pain was alleviated in twenty-six.

TABLE 7.—RESULTS OF RADIUM TREATMENT IN TABES

Authors	Cases	Relief of Pain	No Change
Falta and Freund	16	5	10
Benczur	14	11	2
Kemen	5	3	2
Stern	3	1	..
Strasser and Selka	4	4	..
Warburg	2	2	..
	44	26	14

Miscellaneous Diseases in Which the Few Results Recorded Indicate Some Possible Value.—These cases are brought together in Table 8: 163 of the 186 cases treated exhibited some signs of improvement.

TABLE 8.—RESULTS OF RADIUM TREATMENT IN MISCELLANEOUS CASES

Disease	Observer	Number of Cases	Improved	Markedly Improved
Respiratory—				
Chronic bronchitis	Bulling	67	56	11
	Sommer	1	1	..
Asthma	Bulling	6	6?	..
	Falta and Freund	7	..	..
Pneumonia	Falta and Freund	3	3	..
Chronic rhinitis and pharyngitis	Bulling	27	..	19
Bronchiectasis	Strasser and Selka	1	1	..
Circulatory—				
Coronary sclerosis	Falta and Freund	3	2	..
Chronic myocarditis	Sommer	5	4	..
	Kemen	10	7	..
	Glaessgen	8	..	8
Raynaud's disease	Mendel	1	1	..
Cardiac neurosis		5	5	..
Neurotic vasomotor disturbances		3	3	..
Aterioscierosis		10	10	..
Nervous System—				
Headache	Neumann	1	1	..
Migraine	Neumann	1	1	..
Apoplexy	Kemen	3	3	..
Miscellaneous—				
Acute rheumatism	Falta and Freund	10	..	8
	Benczur	4	4	..
	Haupt	1	..	1
Subacute rheumatism	Falta and Freund	3	2	..
Scleroderma	Benczur	3	1	2
	Kemen	1	1	..
Enlargement of lymph-nodes	Mendel	1	1	..
	Haupt	1	1	..

The collected results of treatment in these various groups of diseases are brought together in Table 9, from which it will be seen that in 837, or over 80 per cent. of the 1,038 cases, benefit was derived from radium treatment.

TABLE 9.—SUMMARY OF RESULTS OF RADIUM TREATMENT IN VARIOUS GROUPS STUDIED

	Diseases	No. of Cases	Improved
1.	Chronic arthritis	411	371
	Arthritis deformans	24	16
	Muscular rheumatism	59	49
2.	Gout	166	86
3.	Neuralgia	59	47
4.	Sciatica	115	91
	Lumbago	5	4
	Polyneuritis	8	8
	Neuritis	5	2
5.	Miscellaneous	186	163
		1.038	837

Gudzent, His, Furstenberg, Sommer and Klemperer speak in glowing terms of its value. The introduction of emanatoriums in a large number of the German spas as well as the establishment of a radium institute in Berlin for the treatment of medical cases express confidence in it on the part of the profession abroad.

It should be emphasized that the foregoing statements are based entirely on the results published by various foreign observers and not on the cases treated by us. Our experience has as yet been confined to too small a series of cases to permit of any special deductions. Furthermore, the cases treated have all been of a most unfavorable nature, since we have not felt that the results as published in the literature justified the exclusive use of radium therapy except in those cases which had been given the benefit of all other forms of treatment without improvement.

We must state frankly that the results in our small series of cases comprising only eighteen patients have not been gratifying. The brevity of this paper does not justify us in taking the space necessary for a detailed report of the individual cases; but briefly summarized, our results have been as follows: Our patients were treated entirely by the drinking method with water activated with radium emanation. They were under observation for periods varying from two weeks to three months and were given daily doses of from one-half to forty microcuries. Our series included the following diseases:

Five cases of arthritis deformans of the infectious type. (Of these three showed a diminution of pain and stiffness which for about one month was quite marked. Later the symptoms returned though not with the same severity as before.)

Five cases of muscular rheumatism and neuralgia, conforming somewhat to the group of polyneuralgias of von Noorden and Falta. (One of these patients was apparently cured; another was temporarily benefited, while the others were not affected.)

Three cases of tabes in which there was no recognizable change in the frequency or severity of the lightning pains. (It should be added that these patients were treated over a period of only two weeks and with doses which never exceeded two microcuries.)

One case of acute rheumatic fever (without benefit).

One case of sciatica (without benefit).

One case of Parkinson's disease (with temporary but definite lessening of the stiffness).

One case of chronic nephritis and high blood-pressure (with a lasting diminution of the pressure from over 200 mm. to about 180 mm.; with marked improvement in the subjective symptoms).

One case of gout in which the treatment was followed by a severe exacerbation in all of the affected joints.

The most favorable results have been in the cases of arthritis deformans of the *infectious* type in which three out of the five patients showed some slight but definite improvement.

We make no attempt to draw any conclusions as to the efficacy of this form of therapy from our small number of cases, but feel that any form of medication which has yielded the results reported by the European writers should be the subject of a much more exhaustive test, until its real value can be definitely established and its limitations rationally outlined.

It is with great pleasure that we take this opportunity to thank Dr. Hugh H. Young for the radium used in this work, and also Drs. Howard A. Kelly and Curtis F. Burnam for their kindness in allowing us the use of apparatus which we have as yet been unable to procure.

ABSTRACT OF DISCUSSION

Dr. R. Robinson, Danielson, Conn.: I have had but little experience in the use of radium, but a good deal of experience in its effect on my own wife. She was the subject of arthritis deformans and after being on crutches for nearly a year was practically cured by the use of radium and the hot electric-light bath, the electric-light bath being followed by the radium treatment. She drank the radium three times a day in solution and inhaled it once a day, combined with oxygen gas. The result was somewhat marvelous—one joint, which had been absolutely immovable for weeks, was easily movable as usual after the radium treatment. One knee which compelled her to be on crutches for six months and incapacitated for more than a year is practically so well cured that she is with me in the city and traveling anywhere from one to three miles with perfect ease.

Dr. William H. Mercur, Pittsburgh: Those interested in radium therapy might possibly like to know something of the excellent clinical experimental work now being carried on in Pittsburgh by Dr. William H. Cameron. This work is being done under the auspices of a company whose business it is to extract radium on a very large scale. So far he has treated over one hundred and twenty-five cases. The cases treated are largely joint cases.

Dr. Charles Stewart, Salt Lake City, Utah: For those whose pocketbooks do not allow them to buy radium I would call attention to pitchblende. An old mining man in the mountains of Colorado whom I know and who is very familiar with Denver told me that he picked up a nugget and put it in his pocket; he forgot it for a time and it burnt him. The nugget had radium in it and for a time the burn refused all the efforts of the local men to make it heal. That attracted my attention to the fact that pitchblende that does produce a burn might do some good. I have had cases which were benefited by the use of these pitchblendes.

Dr. W. H. Witt, Nashville, Tenn.: The chief value of this paper is not that it encourages or discourages the use of radium in internal diseases, but that it represents an honest and painstaking effort at clinics in which they have all resources for working out the question as to whether or not it really does any good. I believe the main interest to us in this report is that the work has been done where we know good work is done and where we can be really guided by the results they get.

RUPTURE OF A MEDIASTINAL LYMPH-NODE INTO THE BRONCHUS *

A. L. GOODMAN, M.D.
Visiting Physician to the A. Jacobi Department for Children, German Hospital
NEW YORK

History.—G. S., aged 5, was admitted from the German Hospital Dispensary to the A. Jacobi Department for Children, Nov. 25, 1912, with a diagnosis of pus in the urine. The child had been in remarkably good health; the birth was normal; the baby was breast-fed for two years. Until the present illness life was uneventful; the child had no acute or chronic illness, no coughing or expectoration, and no gastro-intestinal complaint. No tuberculosis is present in the family of the father or mother. The mother had no miscarriages. The two living children are in perfect health. Four months before, the mother noticed mucus in the urine, and the child complained that urination was painful. He cried when urinating, but there was no increased pain at the end of urination; neither was there increased frequency. A few weeks before the mother noted a slight trace of blood in the urine.

Physical Examination.—The patient is a well-nourished little boy; pupils are equal and react to light; no swelling under the eyes. The cervical, axillary and inguinal lymph-nodes are normal. The tonsils are hypertrophied; the throat otherwise is negative. The heart percusses within normal limits; the sounds are clear; no murmurs are heard. Percussion and breathing-sounds show the lungs to be in normal condition. There is no tenderness over the suprapubic region, over the region of the kidneys or over other parts of the abdomen. Percussion of the liver shows that it extends nearly to the costal border; the edge is not felt. The percussion note over the spleen is normal. There is no tenderness of the region of the kidneys; neither kidney can be felt. Both testicles have descended and are normal. The extremities are in normal condition; knee-jerks are present; there is no edema.

Laboratory Reports.—The urinalysis showed a faint trace of albumin. The urine was yellow and turbid, with a white mucoid sediment. The centrifuge specimen showed few blood-cells, many leukocytes, and few triple phosphates; no tubercle bacilli were found, but the culture showed a growth of colon bacilli.

Examination of the blood showed conditions normal. Cystoscopy revealed ulceration on the right side, near the trigon. Trabeculae were seen in several places over the bladder wall; the meatus of the right ureter was enlarged and reddened; the urine from the ureter seemed to be clear. Dr. Rehling, who did the cystoscopy, thought that the ulcerations were not of a tuberculous nature, and no definite diagnosis was made. Roentgenoscopy of the genito-urinary tract on both sides did not reveal the presence of nephrolithiasis or other abnormality.

Treatment and Course.—Treatment consisted of regulating the diet and giving small doses of hexamethylenamin (urotropin) three times daily. With rest in bed, the urine became clearer from day to day and the boy was apparently doing well. On the night of December 5, eleven days after his admission to the hospital, he was put to sleep with the other children in the ward after having partaken of the usual evening meal, feeling perfectly well and in good spirits. About 11 o'clock at night the nurse, on going from bed to bed, noticed that the child was somewhat blue and was breathing heavily, and, on trying to arouse him, found that he was unconscious. She at once notified the house surgeon, who came to the bedside finding the child with flushed face, dilated pupils and rapid breathing. It was first thought that the child was suffering from some drug poison, possibly belladonna. I was summoned to the hospital and found the child cyanotic, pupils dilated, head thrown back, arms drawn up, legs spastic, big toes dorsally flexed, and knee-jerks exaggerated. Drug intoxication was excluded.

The stomach was lavaged; small flakes of food particles were returned, and lavage was continued until the water returned clear. The bowels were thoroughly irrigated; a lumbar puncture was made, and the fluid returned under slight pressure. A tentative diagnosis of tuberculous meningitis was made; the head was elevated, an ice-bag was applied, and the child was given 2½ grains of calomel. I returned home and the house staff went to bed. About three hours later the house surgeon was again summoned hurriedly to the bedside of the boy and found him apparently in collapse and lifeless. The face was almost black. Artificial respiration was resorted to but with no result. Intubation was then performed, which was also without result. Then a tracheotomy was done, but the child did not respond on the introduction of the tracheotomy tube. A catheter was introduced through the tracheotomy tube into the trachea, but without effect. Then the insufflation apparatus was connected with the end of the catheter and, when the catheter was moved back and forth, suddenly from half an ounce to an ounce of a thick cheesy mass exuded from the tracheotomy tube, between it and the catheter. On the expulsion of this thick mass the child began to breathe more freely, the lips reddened and the cyanosis disappeared. Although the general appearance of the child was greatly improved, he remained unconscious for four or five hours longer, when consciousness gradually returned.

During the next twenty-four hours his condition remained about the same, except that he occasionally dropped into a stupor-sleep. During the first day after the tracheotomy he vomited twice, the vomitus consisting of some undigested and unchewed Lima beans which he had eaten the day before and which were too large to have been removed by the lavage the night previous. The temperature during his entire stay in the hospital and for the first day after the tracheotomy remained perfectly normal. The pulse-rate was also within normal limits.

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The day following—that is to say, twenty-six hours after the tracheotomy—the child developed an inspiration pneumonia, which ran its regular course. In the excitement of saving the child's life, the pus or cheesy mass which was forced out of the trachea was lost, with the exception of a small quantity which remained on the dressing, a culture of which showed a growth of streptococci.

The third day, with the exception of the bronchopneumonia, the child's condition was very good. The knee-jerks were present and were not exaggerated; the Babinski reflex was negative; the Oppenheim reflex was not obtained. Kernig's sign was practically within normal limits. There were no paralyses.

December 9 the eyes were examined by Dr. Denig and a slight indication of choked disk was observed. The ears were examined and found negative. The laboratory report of the spinal fluid showed a negative result from the globulin, albumin and Fehling tests. The cell-count showed 8 cells per cubic centimeter. No tubercle bacilli were found, and the guinea-pigs which were injected with spinal fluid have never showed any symptom of tuberculosis. The blood-count made the first day after the tracheotomy showed white blood-cells, 21,800; polynuclears, 70 per cent.; lymphocytes, 21 per cent.; small mononuclear lymphocytes, 9 per cent.; the blood-culture was sterile. The stools were lumpy and yellow, showing few curds. No parasites were found.

Since the possibility was realized that a rupture of an abscess or lymph-node into the trachea might have caused the symptoms, the child was sent, December 6, one day after the tracheotomy, to the Roentgen-ray department for roentgenoscopy. The report was as follows: "A somewhat widened shadow at the base of the heart. This is most marked on the left side of the spinal column and may indicate some involvement of the mediastinal lymph-nodes. On the left side, at the root, is seen a small amount of consolidation. On the right side of the spinal column, just above the shadow of the right heart, is seen protruding a circular faint shadow; this is most marked in the fourth intercostal space, and behind and above it in the third interspace is also another faint circular shadow. These usually indicate enlargement of the mediastinal lymph-nodes, and associated with a clinical history of a bladder condition I feel certain that we are dealing with a broken-down lymph-node which either has ruptured into the bronchus or was producing asphyxia by constricting the trachea, and the slight deviation of the trachea to the right just above the bifurcation rather points to this condition. If this is so, then the end of the tracheotomy tube or, rather, the catheter, probably ruptured the broken-down lymph-node abscess-cavity."

In a review of the literature in search of similar cases, the first that came to my notice was the one reported by Dr. H. D. Chapin[1] as a case of sudden death from pressure on the pneumogastric nerve, with necropsy. This was a patient in the outpatient department who was brought in for a slight cough. The only abnormal finding in the examination of the child was a slight difference of breathing on inspiration, as if there was a narrowing of some canal in the respiratory tract. During a number of weeks while the child was under observation, repeated examinations showed no change in its physical condition. One day the mother came to Dr. Chapin and reported that the child had died the night previous. At 6 o'clock on the evening of that day the child ate a hearty supper, was in good spirits, and was laughing and playing when at 8 o'clock it was seized with a paroxysm of coughing, dyspnea with marked cyanosis, and sudden death. The necropsy revealed enlarged mediastinal lymph-nodes with a ruptured abscess-cavity pressing on an inflamed pneumogastric nerve.

F. Petersen,[2] reported a case of obstruction of the trachea through a caseated and softened bronchial lymph-node, cured by means of tracheotomy. The patient was a girl aged 6, on whom tracheotomy was performed on account of severe dyspnea, with facial cyanosis and unconsciousness. Respiration was not much improved by the tracheotomy, but the correct diagnosis became apparent when small amounts of cheesy débris were found on a catheter which had been introduced into the trachea and when numerous large and small particles were forced out by the coughing until a large caseated and calcified piece of lymph-node was expectorated. Respiration then became free, and the child was discharged well one month later. No tubercle bacilli were discovered on examination of the material.

F. Nachod[3] reported a case of bronchial stenosis due to rupture of peribronchial lymph-nodes into the air-passages of a boy aged 6½. The diagnosis of obstruction of the right bronchus had been made before the performance of the tracheotomy, which served to give exit to large pieces of cheesy lymph-node from the right bronchus. The patient recovered after diffuse bronchitis and right-side pleurisy. Microscopic examination of the eliminated masses showed them to consist of lymph-nodes almost entirely caseated. The examination for tubercle bacilli had a negative outcome.

E. Gerber[4] observed a case of asphyxiation due to rupture of the caseated lymph-node into the trachea. At the necropsy a caseated lymph-node was found to have blocked the main bronchus. Tuberculous peribronchitis was demonstrated in addition to the perforation. The patient was a boy, aged 6, who was suddenly attacked with asphyxia and was dead before he reached the hospital. Death was due to the perforation of the anterior wall of the trachea, and to the passage through the opening of a piece of cheesy lymph-node which blocked the air-passage. The left lung was free, but several tuberculous foci were found in the right upper lobe. Gerber assumes that the condition causing death developed insidiously by the cheesy lymph-node first infecting and then disintegrating the tracheal wall.

V. Gandiani[5] reported a case of rupture of a caseated lymph-node abscess into the trachea. The patient was a child aged 3, who three days prior to admission became ill with cough, fever and respiratory disturbances. The pharynx was reddened, and the tonsils presented small isolated necrotic foci. The general condition was bad. Diphtheritic serum was administered. The child had a sudden attack of dyspnea with rapidly progressive cyanosis and symptoms of asphyxiation. Tracheotomy was performed, but the child died half an hour later. At the necropsy the trachea was found to be surrounded by a large packet of lymph-nodes as far as the beginning of the bronchi. The anterior wall, a few centimeters above the bifurcation, presented an orifice the size of a lentil. Through the perforation in the trachea a fairly large cavity was reached, which was emptied by pressure from outside, and contained tough, cheesy masses, which also blocked the bronchi. The peribronchial lymph-nodes were tuberculous.

Loehrer[6] reported the case of a boy, aged 4, who suddenly died under the signs of acute asphyxiation without having been ill in any way. At the necropsy a grayish-yellow structure of rather firm consistence was found which solidly packed the lumen of the trachea, filling it almost up to the bifurcation. The right bronchus, moreover, contained an opening 8 mm. in width through which a cavity about the size of a walnut, with rigid walls, was reached. This cavity was filled with pasty, friable masses. Animal experimentation showed that the changes of the lymph-nodes were due to tuberculous caseation. Loehrer points out that the softening of the caseated tuberculous lymph-nodes of the neck and the bronchi, and especially their rupture into adjacent hollow organs, are probably the result of a mixed infection.

---

[1] Chapin, H. D.: N. Y. Med. Jour., March 15, 1884.

[2] Petersen, F.: Deutsch. med. Wchnschr., 1885.

[3] Nachod, F.: Prager med. Wchnschr., 1897, No. 33, p. 393.

[4] Gerber, E.: Deutsch. Ztschr. f. Chir., 1904, xcv, 361.

[5] Gandiani, V.: From the San Giovanni al Saterano Hospital, Rome, Deutsch. med. Wchnschr., 1904, No. 24.

[6] Loehrer: München. med. Wchnschr., 1904, No. 27, p. 205.

Biedert and Fischl[7] speak of lymph-nodes without tubercle bacilli or other evidences of tuberculosis, and state that this is probably a very rare occurrence.

Skala[8] reports the case of a girl of 14, on whom a tracheotomy was performed on account of rapidly progressive dyspnea. Opposite to the tracheotomy wound in the membranous posterior wall of the trachea was a constricting abscess, the pus of which contained streptococci. The etiology of the abscess—whether due to a foreign body or originating from the adjacent lymph-nodes—was doubtful. The operation was followed by prompt recovery.

C. Comba[9] observed an unusual complication of tuberculous peribronchial lymph-nodes in a child. The boy, aged 11, had a dry cough, swelling on left side of neck, and dyspnea. On his admission to the hospital, bronchial breathing and crepitation were heard on the left side of the thorax. Three weeks later the patient died under symptoms of tuberculous meningitis. At the necropsy numerous swollen lymph-nodes were found in the anterior and posterior mediastinum. The bronchus presented an ulceration. Evidently a large lymph-node had been pressed against it by the mass of mediastinal lymph-nodes, with the result that the bronchial wall had been perforated. A fragment of caseated gland had then penetrated into the bronchus and entered into the trachea, causing severe attacks of dyspnea.

Rabot and Di Villiers[10] observed a boy who had attacks of paroxysmal coughing which resembled whooping-cough. Under progressive aggravation of the condition the patient died at the end of two weeks. The necropsy showed numerous lymph-nodes along the trachea at its bifurcation and around the large bronchi. The right lung contained a cavity. Several punctiform tubercles were also found at the base of the lung. Microscopic examination confirmed the diagnosis.

Knoepfelmacher[11] demonstrated an anatomic specimen in the case of a child, aged 2½, who had been under treatment eight days for diphtheria. Tracheotomy had been performed for sudden extreme dyspnea. The trachea was found to be free, but the dyspnea and pulmonary emphysema persisted. The necropsy confirmed the suspicion that the right main bronchus had been blocked by a tuberculous lymph-node.

Sternberg[12] reported before the Brünn Medical Society the case of a child, aged 2, who died suddenly after the rupture of a caseated mediastinal lymph-node into the trachea. The point of rupture was at the bifurcation. The trachea contained an oval piece of a caseated lymph-node about 2 cm. in length.

C. Ebert[13] reports three cases of rupture of mediastinal lymph-nodes into the trachea, with necropsies. In only one of these cases was the tubercle bacilli demonstrated.

E. Dina[14] contributes an observation on perforation of the air-passages by caseated bronchial lymph-nodes. The patient was a child, aged 5, who was admitted to the clinic with severe asphyxiation. The condition suggested laryngeal diphtheria, for which intubation was performed. Respiration still remained difficult and did not become normal until a yellowish-white mass was expelled in a coughing-fit from the tracheotomy wound. On examination, this body was found to be a caseated lymph-node in which tubercle bacilli could be demonstrated.

Coakley[15] reported a death through suffocation due to pressure of a tuberculous mediastinal lymph-node on the trachea. The patient was a girl, aged 3. Necropsy showed an oval mass, 2.5 mm. in length, lying underneath the tracheal mucosa and entirely blocking the lumen. A tuberculous focus was found in the left pulmonary apex, and also tuberculous peritoneal lymph-nodes. D. Bryson Delavan also observed a similar case.

Maillet[16] pointed out that certain symptoms in the form of acute functional disturbances may suddenly appear in the course of tracheobronchial adenopathy and may actually represent the first manifestations of a previously unrecognized or latent adenopathy. These symptoms may be of a grave, or at least alarming, character. They may be divided according to their involvement of the respiratory, circulatory or digestive apparatus. The respiratory symptoms are the most common and also the best known. Two illustratives cases are given—one, in a girl who had had a severe coughing fit with extreme dyspnea; the other in a boy, aged 2, who suffered within a week from two attacks of dyspnea, with cyanosis of the face. These attacks of acute respiratory tracheobronchial adenopathy must be differentiated from the attacks of dyspnea due to hypertrophy of the thymus.

Oeri[17] reported a case of rupture of a bronchial lymph-node into the bronchus, with a favorable outcome.

Ubert[18] reported a case of tracheal stenosis from a caseated, calcified and softened bronchial lymph-node. The patient was saved.

H. Grenert[19] gave a short review of this form of tracheobronchial adenopathy.

Betke[20] reported a case of bronchotracheal stenosis due to tuberculous lymph-nodes at the bifurcation in a woman, aged 29, who was cured by surgical interference (longitudinal mediastinotomy, according to Sauerbruch and Schumacher).

From roentgenoscopy of the chest of all children admitted to the A. Jacobi Department for Children, I am convinced that the existence of enlarged mediastinal lymph-nodes is more frequent than one has been led to suppose. Without roentgenoscopy it is, in the great majority of cases, absolutely impossible to make a diagnosis of their existence by either auscultation or percussion. It may be true that a great many persons with enlarged mediastinal lymph-nodes grow to adolescence and adult life without showing symptoms of the condition, but it seems to me that when their existence has been demonstrated this condition should be borne in mind and the child treated accordingly. From a review of the cases just cited, it is evident that the onset is usually very sudden; often, as in the case which I have presented, in an otherwise apparently healthy child. The symptoms may be divided into those showing involvement of the respiratory, the circulatory or the digestive apparatus, or a combination of all three. Those of the respiratory type show either slight respiratory sounds in auscultation, slight cough, or more marked labored breathing. The cases of the circulatory type show more or less cyanosis, accompanied with a slight respiratory cough or none at all. The digestive type starts in with fever, vomiting followed by difficult breathing, cyanosis, unconsciousness and sometimes death. These functional symptoms are varied—sometimes pronounced and sometimes practically absent. In quite a few instances when the digestive type of symptoms is presented there is also marked meningeal irritation, as in the one which I have given, and from the symptoms which the child presents it is impossible to differentiate between this form of meningismus and a true meningitis. The more I see of these cases the more I am impressed with the fact that a great many of the cases of so-called gastro-intestinal disturbance with meningeal symptoms are often cases of mediastinitis with local suppuration and absorption, rather than true intestinal toxemia. It is evident from the frequency of these enlarged mediastinal lymph-nodes that they no doubt stand the brunt of the battle of bacillary pulmonary invasion.

---

[7] Biedert and Fischl: Lehrbuch der Kinderkrankheiten, 1902.

[8] Skala: Wien. klin. Rundschau, 1904, Nos. 41-42.

[9] Comba, C.: Rev. di. clin. Pediat., April, 1905, p. 241.

[10] Rabot and Di Villiers: Lyon Méd., 1905, No. 19.

[11] Knoepfelmacher: Wien. med. Wchnschr., 1907, No. 23.

[12] Sternberg: Wien. klin. Wchnschr., 1907, No. 29, p. 900.

[13] Ebert, C.: Internat. Centralbl. f. Laryngol., 1911, xxvii.

[14] Dina, E.: Rev. di clin. Pediat., November, 1909.

[15] Coakley: Tr. Am. Laryngol. Assn., Washington, May, 1910.

[16] Maillet: Ann. de med. et. chir., inf., 1911, xv, 511.

[17] Oeri: München. med. Wchnschr., 1913, No. 8, 410.

[18] Ubert: Inaugural Dissertation, Kiel, 1885.

[19] Grenert, H.: Ann. di med. et chir. inf., 1911, xv, 479.

[20] Betke: Berl. klin. Wchnschr., 1913, No. 4, p. 197.

As regards the etiology, one must divide these cases into those of tuberculous and non-tuberculous infections. The non-tuberculous infections may be subdivided into the true streptococcus or the true staphylococcus, or a mixed infection of the two.

In the case which I have reported, repeated examinations to demonstrate the existence of the tubercle bacillus has been unsuccessful. I have the boy back again in the hospital and have injected guinea-pigs with catheterized urine obtained from the patient's ureters, and up to the present writing the guinea-pigs have shown no evidence of tuberculosis.

The necropsies in all the cases show about the same findings. The enlarged and suppurating lymph-node or lymph-nodes either press forward and partially obstruct or totally occlude the bronchus and trachea, or they press backward on the pneumogastric nerve, thoracic duct or some vessel situated in the immediate vicinity of the mediastinum. In fact, I have seen cases at necropsy in the hospital in which the mediastinal lymph-nodes have perforated into the adjacent parenchyma of the lung and formed a localized abscess which produced absolutely no symptoms *intra vitam* and was discovered only at the necropsy.

As to differential diagnosis, these cases must be distinguished from: (1) the true type of meningitis in all its forms; (2) from cases of suspicious cough or pressure on the main branches of the air-passages when the usual causes of such conditions can be excluded, and (3) from the so-called intestinal toxemias of childhood of the mild form, or of the graver form accompanied with meningeal irritation, high fever and cyanosis.

The prognosis depends entirely on whether the lymph-nodes remain in a simple enlarged state without producing any pressure on the adjacent organs, whether they go on to suppuration and subsequent perforation, or a combination of all three conditions, the most favorable course being, in case of suppuration as indicated by the many cases reported, perforation into one or other of the larger main branches of the upper air-passages and expulsion either by fits of coughing or by prompt surgical interference, as in the case cited.

The treatment of these cases resolves itself into medical and surgical. The medical treatment, as soon as the diagnosis is made, should consist in the same precautions as are indicated in other forms of incipient tuberculosis. These cases in which the lymph-nodes are hidden in the mediastinum do not differ from those cases of tuberculosis of the lymph-nodes of the neck which can be seen and which require constant attention. The child should sleep in a well-ventilated room, and should be given plenty of pasteurized milk and a good wholesome diet suited to its age, with the continuous administration—not for weeks or months, but for years—of small doses of guaiacol and arsenic. Of course, when these cases call for surgical interference, this should be promptly rendered. With the improved method of mediastinal surgery by the aid of the Sauerbruch chamber or the Meltzer-Auer apparatus, it will remain a question for future obesrvation whether or not, in cases showing symptoms of slight, moderate or more severe forms of mediastinal obstruction, it is advisable to open the mediastinum by a median mediastinotomy and remove the lymph-nodes.

I wish to thank Dr. Sanford, the house surgeon, who by his prompt and persistent measures and surgical skill in the case which I have reported undoubtedly saved the life of the child. Under other conditions the patient would certainly have succumbed. I also want to thank the other members of the house staff for their untiring assistance in this case.

136 West Eighty-Seventh Street.

ABSTRACT OF DISCUSSION

DR. WILLY MEYER, New York: I am sorry that I came too late to hear Dr. Goodman's paper. No doubt Dr. Goodman has mentioned how all these symptoms were worse in the course of the night, and how the house surgeon in the case of emergency was called on to try to save the young patient, and how, owing to his prompt action, the child's life was saved. No doubt at the time it was the proper procedure to open the trachea and to see how imminent suffocation could be averted. Certainly as to saving life it is a unique case. We do not often hear of similar cases. In the adult, however, I believe that these cases are not rare. I know that Dr. Goodman has carefully gone over the literature and collected a number of cases. I should like to report briefly one case we had not long ago under the supervision of the hospital. A young surgeon, stepping from behind a truck, walked in front of an automobile and was thrown to the ground. She was apparently not seriously injured, but an ambulance was called and she was taken to one of the nearest hospitals. On the way to the hospital the patient commenced coughing pus, and continued coughing pus, developing symptoms of lobular pneumonia, and with these conditions was transferred to our hospital with a diagnosis of some thoracic trouble, probably, on account of the expectoration of pus, tuberculosis. Expectoration of pus finally ceased, and she left the hospital after a certain time cured. We had roentgenograms made, which were of tremendous help in diagnosis. It was shown that there was peribronchial infiltration, and to all appearances—since she had had symptoms of tuberculosis before—there can be no doubt that she had a coalescence of one or more peribronchial lymph-nodes, which on account of the accident had perforated into the bronchial tract. I am sure that such cases are not rare. The patient was fortunate in that she had to expectorate the mass of pus, whereas in the interesting case brought out by Dr. Goodman there was no convenient exit for this filling up of the smaller bronchi, and if no relief had been given the child would have died.

I believe that physicians should pay more attention to these conditions, and especially insist on stereopticon examinations, which are of tremendous help in thoracic conditions.

Dr. Isaac A. Abt, Chicago: I agree with the previous speaker that this condition is not rare. It is true that Dr. Goodman himself is not positive as to the exact nature of this abscess cavity, but we have been much enlightened, especially as to tuberculosis infection, by the Vienna school, for the large number of cases examined. These reports mention almost constantly that the entrance of the tubercle bacilli is for the most part respiratory. It enters, usually, through the lung, some area in the lung constituting the initial or primary focus or lesion, similar to the initial lesion of syphilis, and soon after this there is infection of the bronchial lymph-nodes. This infection of the bronchial lymph-nodes undergoes various courses. It may form a central hyperplasia, it may remain latent or it may break into blood-vessels or lymphatics or the digestive tissues. The important thing is that, if we accept these views, the infection of the bronchial glands are of extremely common occurrence. Dr. Goodman's case with its brilliant treatment and unusual recovery is noteworthy, and the doctor is to be congratulated on the successful issue of the case.

Dr. A. W. Myers, Milwaukee: The paper which Dr. Goodman has presented did not mention the great help that the bronchoscope offers in these cases. It seems to me that this instrument is worth while bearing in mind in connection with the Roentgen-ray examinations, because they supplement each other so satisfactorily. A good many enlargements of bronchial lymph-nodes will, of course, occur in which no lesion can be seen with the bronchoscope, yet in many cases it is possible to obtain definite information through this means. It seems to me that the results are second only to the revelations of roentgenoscopy in aiding in diagnosing the condition.

Dr. C. F. Wahrer, Fort Madison, Iowa: Dr. Goodman says that the cases are to be divided into tuberculous and non-tuberculous. I should like to ask if they are not usually tuberculous. If not, what are they? It is well to designate distinctly all we know about this. I should like to know whether or not any but tuberculous infection is found in the mediastinum.

Dr. A. L. Goodman, New York: I agree with Dr. Abt in what he said in reference to tuberculous infection of the mediastinal lymph-nodes. I think that we all agree that, in the majority of cases, the tubercle bacillus is the exciting cause. There are cases, however, like the one which I had the privilege of presenting to you, on which we worked nearly eight months to demonstrate the existence of the tubercle bacillus, and we have failed in every instance. As I stated in my paper, we divided those cases—and from a study of the literature we are justified in doing so—into those which are tuberculous and those which are non-tuberculous. In the non-tuberculous cases, as in the one we had at the hospital, we demonstrated the presence of streptococci. You can have streptococcus or staphylococcus in any form, or a mixture of the two, and usually in the examination of a glandular exudate in which the tubercle bacillus is not demonstrated, we have a mixed infection.

The Roentgen ray shows the existence of the bronchial lymph-nodes distinctly. In these cases there is usually not much time to be lost, and to use a bronchoscope is not always easy.

There is one other point that I thought Dr. Meyer would bring out; that is, the possibility in the future, when we see large masses of lymph-nodes present by the aid of the Roentgen ray and other examinations, of determining whether or not surgical intervention would be indicated.

A New Tuberculosis Nostrum.—"Nurchisna" is the name of a new alleged cure for tuberculosis. The advertisement states that its inventor, a "modest gentleman," worked indefatigably for ten years making experiments on pigs, mice, sheep and himself, before perfecting the cure. The next experiment will be on the goat, which is always the public.—*Buffalo Sanitary Bulletin.*

ROSEOLA INFANTUM *

JOHN ZAHORSKY, M.D.

ST. LOUIS

The name "roseola infantilis" had an important place in the medical terminology of writers on skin diseases fifty years ago. Willan distinguished several varieties, and subsequent writers followed his classification with some variations. The older works on pediatrics had descriptions of the disease, but it is obvious from these descriptions that many different eruptions were confused under this heading as Hardaway[1] pointed out. On the advice of the dermatologists the name was dropped and recent text-books on pediatrics do not mention this affection.

For many years I have been interested in a symptom-complex, a febrile erythema, which occurs almost exclusively in infants and which deserves a place outside of the erythema group of skin diseases. To this the older writers gave the name "roseola infantilis," but did not differentiate this disease from rubella and toxic erythemata. In 1909 I discussed this subject before the St. Louis Pediatric society and referred to fifteen cases which were seen in private practice.[2] I wish to repeat some of the remarks made previously and to report twenty-nine additional cases (Cases 4 to 33).

The patient is almost always a child under 3 years of age who suddenly becomes ill with a high fever. The physician is called and on an examination of the patient finds nothing to account for the fever. The fever continues, but no diagnosis can be made on the second, third or even fourth day. Then the temperature drops to normal or nearly so and the child, who has been drowsy and irritable, sits up and commences to play. Coincident with the decline in the temperature a morbilliform rash appears on the face and neck and rapidly spreads over the body. The eruption disappears in twenty-four to forty-eight hours. There are no complications nor sequelae. No desquamation follows the disappearance of the rash.

SYMPTOMATOLOGY

These are striking and characteristic symptoms: A prodromal fever lasts from two to five days, the disappearance of the general symptoms follows the appearance of the rash and the eruption is morbilliform in character. The following brief analysis of the symptoms was given in the previous paper.

Fever.—This is generally high, ranging from 102 to 105. The usual temperature at the physician's visit is about 103. The elevation in temperature is continuous with moderate morning remissions. It is accompanied by extreme restlessness at night and drowsiness during the day. The fever falls by crisis within a few hours after the appearance of the eruption. In one or two cases the fever disappeared a few hours before the eruption was observed. In some cases the eruption covered about one-half of the body.

The Eruption.—This is distinctly morbilliform, that is, a rose-red macular, or maculopapular eruption, showing circular or elliptical lesions varying in diameter from 1 to 3 mm., with healthy skin intervening. The rash is most marked on the trunk, less so on the face. The back, buttocks and thighs are generally well covered. The lesions may occasionally be very sparse and limited to the trunk. There is no crescentic arrangement as in rubeola, and the lesions are generally not raised much above the skin.

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Hardaway: Keating's Cyclopedia of the Diseases of Children, iv, 17.

[2] Pediatrics, January, 1910.

The Respiratory Tract.—There are no catarrhal symptoms except congestion of the fauces. Sometimes the disease at the onset may be mistaken for a grippal angina. A macular enanthem was sometimes seen on the palate on the day preceding and coincident with the eruption. Koplik's spots were absent. Slight redness of the conjunctiva was observed a few times.

The Gastro-Enteric Tract.—Vomiting was noted in a few cases. Diarrhea was present a few times. Several of the little patients showed some signs of indigestion, but nothing characteristic.

Desquamation.—None was observed.

The Lymph-Nodes.—The superficial lymph-nodes in the neck were very slightly enlarged in most cases. The axillary and inguinal nodes seemed normal.

ETIOLOGY

All of my cases occurred in infants under 2½ years of age. Sex seems to exert no influence. All but one of the patients were fed on artificial food, or were given supplemental feeding to breast-milk.

The disease is not contagious. Only in one family did more than one case occur. These were two little boys, aged 2½ and 1½ years, who had the eruption three days apart. Older children who have not had rubella remained with the little patients continually without contracting the disease. The comparative isolation of these young children renders the assumption of a contagion almost impossible.

The active cause of the disease is unknown. That it is due to an intestinal intoxication is possible, but there is not much in my series to support this view.

DIFFERENTIAL DIAGNOSIS

There is only one exanthem which need be seriously considered in diagnosis and that is German measles (rubella). Measles, scarlet fever, Duke's disease, and erythema infectiosum have distinctive characters not possessed by roseola which are sufficient to separate them positively from the latter disease. So many writers have attempted to separate certain clinical types of rubella from the disease proper that one who will make another attempt is almost subject to ridicule. It is probably true that rubella is a name applied to a group of closely related infections; but roseola has such distinct features that I must insist that it deserves a separate place in our nosology. A parallelism between the two diseases clearly shows the distinction.

In rubella the prodromal fever is but of a few hours duration. The fever rises with the eruption. Children of all ages are susceptible. It is contagious, it occurs mostly in the spring and there is enlargement of the lymph-nodes.

In roseola the prodromal fever lasts three to five days and the fever disappears with the eruption. It occurs mostly in infants. It is not contagious and is prevalent mostly in the fall and winter. There is little enlargement of the lymph-nodes.

Occasionally rubella is characterized by a prolonged prodromal fever, but the other symptoms and its contagiousness separate it from roseola. I have seen rubella in several epidemics and also in isolated cases and yet the syndrome presented by roseola is different.

Roseola cannot be placed in the category of the exudative erythemata for obvious reasons. It is not a drug rash and it differs from the ordinary erythemata in being preceded for several days by fever.

OLDER DESCRIPTIONS

In Meigs and Pepper's text-book[3] the following description is found after describing different forms of the disease, some of which are clearly toxic erythemata: "Again, in a yet more marked form, which frequently but by no means exclusively occurs in warm weather, when it is styled roseola estiva and autumnalis, the eruption is symptomatic of a more definite constitutional disturbance. It begins with more or less chilliness, alternating with heat, with loss of strength and spirits, with headache, restlessness, sometimes mild delirium, and even, it is said, though we have never seen them, with slight convulsive phenomena. At the same time there is some slight febrile reaction. . . . After these symptoms have continued for two, three, four, or even six or seven days, the eruption appears first on the face and neck, whence it extends in twenty-four or forty-eight hours to the rest of the body. The rash resembles very closely in some cases exactly that of measles; but the catarrhal symptoms are absent. . . . The eruption is sometimes accompanied by itching, and sometimes by stinging pain, and the febrile symptoms generally continue, though moderated in a degree after the appearance of the rash; while in other instances the fever disappears entirely from that moment." I cite this to show that such cases have been observed, although many were confused with rubella, dengue and other eruptions.

Dermatologists probably do not see these cases, as the general practitioner treats them through the febrile stage for a variety of conditions and when the eruption appears there is such amelioration of the symptoms that counsel is not sought.

To show what difficulties in diagnosis are encountered in private practice a history of one of my earlier cases is given.

REPORT OF CASES

Case I.—J. C., a boy, 14 months old, had always been healthy. The nourishment was by maternal nursing for seven months from birth, since then cereals and cow's milk have been used with some additional food from the table. There has been no serious digestive disturbance. In May, 1908, the patient was suddenly taken with a high fever (104). The most careful inquiry revealed nothing abnormal beyond a congested throat. As the disease was regarded as an intestinal intoxication, castor oil and restricted diet was prescribed. On the following day the temperature was still high and the mother reported that the child was restless through the night. Again the physical examination revealed nothing. The ear-drums were not congested, there was no marked sore throat and no stuffy nose. On the following day a urinary examination for suspected pyelitis yielded no evidence of disease. A blood-count was made—leukocytes 11,500. The blood was also examined for the malarial plasmodia and another specimen of blood was sent to the health department for the purpose of a Widal test. On the fourth day we were still puzzled; but the mother telephoned that the baby seemed better. In the afternoon another message informed us that the patient had an eruption. The rash proved a typical rubella-like efflorescence. A prompt drop in temperature was synchronous with the appearance of the eruption.

During the last three years I have seen about thirty cases of this disease and a brief report of twenty-nine (Cases 4 to 33) is appended.

Of these twenty-nine cases fifteen occurred in girls and fourteen in boys. All the children were under the age of 26 months. Nine cases were seen in 1911, fourteen in 1912, and eight (to June 1) in 1913. Three cases occurred in January, six in February, four in March, three in April, one in May, two in June, one in

---

[3] Meigs and Pepper: Diseases of Children.

October, five in November and four in December. July, August, and September were exempt. In this seasonal occurrence roseola resembles the respiratory infections. All the cases occurring during the measles epidemic of 1913 were particularly watched for evidence of measles. Two other cases were excluded from the series because the catarrhal symptoms were marked and the fever did not fall with the appearance of the eruption, although Koplik spots were absent and no history of exposure to measles could be ascertained. During 1912 very few measles cases occurred in St. Louis. During these three years a few cases of German measles were seen in older children, but no general epidemic prevailed.

Gastro-enteric symptoms are rarely prominent. In three cases some diarrhea was noticed. This subsided with the appearance of the rash. One other case seen in June, 1913, was not placed in this series. This was a baby boy, 9 months old, who suffered from diarrhea and slight fever for three days. The stools were frequent and acid in reaction. On the fourth day an intense erythematous eruption appeared. It lacked the morbilliform character and was classified with toxic erythemata. I have met this particular syndrome in children above 2½ years of age only twice in the last six years.

CASE 2.—G. E., aged 9 years, was seen in August, 1907. The only prominent symptom was an elevation of the temperature (104). Fever with a temperature range of 102 to 104 continued for four days. Every effort was made to make a diagnosis without success. On the fourth day a few roseolar spots were seen on the abdomen and a Widal test was made. On the fifth day the temperature had dropped to normal and the boy felt well. The whole trunk was covered with circular spots resembling the rose spots seen in typhoid. There were no other symptoms.

CASE 3.—A. R., aged 14 years, has had measles and German measles. In May, 1913, the patient had an attack of fever, (up to 105), which terminated by crisis on the fourth day and a very profuse rash appeared which resembled rubella. There was no desquamation.

Although this particular syndrome was constantly watched for in older children, these two cases are the only ones seen which can compare with the clinical features as observed in infants. In the years preceding 1911, many such cases were observed, all in infants. It is reasonable to assume, then, that the disease with the clinical syndrome mentioned is almost entirely limited to infants, hence the proposal to call the disease "roseola infantum," a slight change from the older name.

This opportunity is taken to urge physicians to study this symptom-complex. It may prove to be a sporadic occurrence of rubella showing certain peculiarities in infants. At present we must regard it as an interesting clinical symptom-complex which to the practitioner deserves a distinct place.

CASE 4.—F. R., a boy, 2 years old, was breast-fed until 5 months of age and was then put on a supplemental feeding of modified cow's milk. There was no serious digestive disturbance until the child was 14 months old, when he suffered from a few attacks of indigestion as solid food was added to the diet. A slight idiosyncrasy against egg was shown at first but was soon overcome. On Nov. 20, 1912, the mother noticed that the child had fever. On the following day the temperature per rectum registered 104 2/5. During the height of the fever there was an expiratory grunt. The examination of the chest and body revealed nothing abnormal, but a congestion of the fauces was noticed. There was no enlargement of lymph-nodes, no eruption, no enanthem, and no ocular redness. Neither vomiting nor diarrhea had been present. Castor oil and aspirin were prescribed.

On the following day the cervical lymph-nodes were palpable, and the temperature was lower (100). No Koplik spots were present and there was neither eruption nor cough. On November 25, when the patient had been free from fever for ten hours, an eruption was first observed on the trunk. This became very profuse and confluent on the back, but was sparse on the extremities. The rash consisted of rose-red maculopapules. No arm sign was present. The tongue and throat were normal. The lymph-nodes were scarcely palpable. No more fever occurred and the eruption disappeared in two days.

CASE 5.—W. M., a girl, 5 months old, has been fed on diluted cow's milk. A restless and feverish condition existed for three days (March 7, 1911). A profuse morbilliform eruption appeared on the face and body. The temperature was normal. There were no Koplik spots.

CASE 6.—C. H., a girl, 5 months old, is suffering from chronic indigestion and malnutrition. The patient had been fed on Nestlé's food but was placed on pasteurized cow's milk one month before, on which the improvement was marked. Two pounds were gained in one month. (March 20, 1911.) A fever which lasted two days ended with a morbilliform rash.

CASE 7.—E. R., a girl, 20 months old, has been bottle-fed since birth. For a long time a digestive disturbance was present. The child suffered one attack of pyelocystitis. Nov. 17, 1911, fever suddenly appeared (103) No adenopathy, no catarrhal symptoms. It was at first thought to be a recurrence of pyelitis. November 20 typical roseola showed on back and face and a disappearance of the symptoms resulted. Three older sisters had no rash either before or after this illness.

CASE 8.—J. R., a boy, 7 months old, has been nursed by the mother supplemented by three bottles of milk daily, which are composed of ⅔ milk and ⅓ water, with 3 per cent. of milk-sugar added. The weight of the child is 16 pounds, 4 ounces. The last three nights the patient has been in a feverish condition, and is constipated; but had one loose stool yesterday (Nov. 7, 1911). Temperature, 99 2/5. A profuse morbilliform rash covers the trunk. There are no Koplik spots, no ocular congestion, no cough and no enlargement of the lymph-nodes. A sister, 3 years old, had no eruptive disease before or after his illness.

CASE 9.—J. T., a girl, 9 months old, takes two quarts of certified milk daily. The weight is 19 pounds. Fever has been present for two days, there is a slight cough and a slight discharge from the eyes. The mother gave one dose of a laxative nostrum. There is no fever to-day. There are no Koplik spots, and no enlargement of lymph-nodes. There is a profuse morbilliform rash on the body. An older sister, 3 years old, had no eruption before or after the baby's illness (Feb. 17, 1913).

CASE 10.—N. R., a boy, 8 months old, has been breast-fed entirely since birth. On the last two days fever has been present and several loose stools are passed daily. There is no fever to-day (June 18, 1911), but the body is covered by a morbilliform rash. One eye is slightly congested. The throat is congested, but there is no enlargement of lymph-nodes and no Koplik spots. No medicine has been given.

CASE 11.—A. M., a fine-looking boy, 11 months old, has been fed on dextrinized flour and milk since he was 2 months old. At 9 months some semisolid food was added to his diet. Fever has been present for two days, and the bowel movements are increased. There is no fever to-day (April 1, 1912), and the bowels have not moved. There is a morbilliform rash on the body. There are no enlargements of the lymph-nodes. A brother and sister had no rash before or after the baby's illness.

CASE 12.—E. C., a girl, 25 months old, has had a tendency to eruptions but no idiosyncrasy against any article of food. The patient is a healthy well-developed girl, and is on a general diet. The mother was disturbed about an eruption, Nov. 23, 1912. The child had fever for three days, and two days before the mother ascertained it to be 102. Restlessness at night is marked and waking is with a scream. No gastro-enteric disturbance has been observed. There is no cough. The rash consists of rose-red macular lesions, some elliptiform, others circular, and are most profuse on the trunk. The rectal temperature is normal. A slight sore throat is noticed, there are no Koplik spots, and no enlargement of the lymph-nodes.

Case 13.—M. W., a girl, 15 months old, is a healthy child, and the mother takes great precautions with the food. There are no other children in the family. The patient is suffering (Dec. 18, 1911) from a morbilliform eruption which is very profuse. There is no fever, and no enlargement of lymph-nodes or enanthem. Four days ago a fretful and feverish condition arose and food was refused. The temperature rose in the night, but the child was playful during the day, though waking several times during last night. The child is very irritable but has no cough, and has received no medicine. The eruption disappeared in three days.

Case 14.—W. M., a girl, 12 months old, has been bottle-fed since the age of 1 month, and has had repeated attacks of indigestion, also once before an erythematous eruption without fever. She is the only child in the family and is kept carefully isolated. Dec. 21, 1912, fever developed and the mother gave castor oil, which evacuated several foul stools. The rectal temperature (Dec. 23, 1912) is 99 2/5 and there is morbilliform eruption on the body. There is no enlargement of the lymph-nodes, and no enanthem.

Case 15.—E. L., a girl, 2 months old, breast-fed, had a mild attack of bronchitis when 1 month old. The child has two sisters and one brother, none of whom has recently suffered from a rash. Fever was present for four days, once rising to 101 4/5, when a morbilliform rash appeared. The fever subsided. There have been some dyspeptic symptoms, the acid dyspepsia of the young infant. Sodium benzoate was prescribed two days before the breaking out of the eruption. Recovery was prompt and no eruptive disease occurred in the family subsequently. (Dec. 5, 1912.)

Case 16.—F. P., a boy, 8 months old, is breast-fed at night, and is given milk and cereal mixture in the day time. There is no digestive disturbance. The temperature on Feb. 14, 1912, was 104. This fever continued three days and dropped to normal suddenly, when the baby broke out with a profuse morbilliform rash. There were no Koplik spots and no evidence of exposure to any eruptive disease.

Case 17.—R. B., a boy, 5½ months old, has been fed on condensed milk; the baby is fat, the weight being 17 pounds. Twenty teaspoonfuls of water and three teaspoonfuls of condensed milk are given every two hours. During the last week there was some constipation. High fever, 103, is present. The conjunctiva is slightly injected. The child is restless. Aspirin and sodium benzoate were given. Feb. 10, 1912, a profuse morbilliform rash appeared. According to the mother's statement, no fever has been present for three days. Neither measles nor German measles was observed in the city at the time.

Case 18.—K. R., a boy, 9 months old, brought to the city from the country. The child is afflicted with cerebral palsy and also suffers from recurrent attacks of bronchitis. (Feb. 27, 1912.) The patient has fever, the temperature rising to 102. Physical signs of bronchitis are present with asthmatic wheezes. Restlessness appears at night. There is no enanthem. Two days later a morbilliform eruption appeared; there was some coryza. The fever disappeared on the day before the eruption and the bronchitis also rapidly improved. Only creosote was given in this case.

Case 19.—E. H., a girl, 6 months old, is fed on cow's milk. The child has had fever for four days and is cross and restless at night. The bowels are somewhat loose. There is no vomiting and no cough. The patient feels better to-day (March 28, 1912). There is a profuse morbilliform eruption but no enlargement of the lymph-nodes. There is no other child in the family.

Case 20.—A. M., a boy, 3 months old, has been fed on the breast, supplemented by a certified milk and water mixture with cane sugar and sodium citrate. The child has been constipated but there is no vomiting. May 19, 1911, the patient began to be restless and feverish. The rectal temperature was 101. Nothing abnormal has been discovered. The baby was put on barley water and breast-feeding. May 25 a morbilliform eruption appeared. Some curds showed in the stools. Half a pound has been lost in weight. There is no fever.

Case 21.—S. G., a boy, 5 months old, is breast-fed supplemented by cow's milk, diluted. (Dec. 8, 1912.) Fever (103) is present. This continued for three days. On the fourth day a maculopapular eruption appeared, which covered the trunk and extremities. The temperature was 98 4/5. There was slight enlargement of the lymph-nodes. A slight digestive disturbance is present. The baby is breast-fed, but gets in addition three bottles of certified milk modified with water and cane-sugar.

Case 22.—B. K., a girl, 5 months old, is entirely breast-fed. The child has had fever all night (Feb. 9, 1913). There is no coughing or sneezing. The rectal temperature is 102 3/5; the throat is congested but there is no ear trouble. The fever continued on February 10, with no change in the physical condition. There was no digestive disturbance. February 11, the temperature has subsided. There is a morbilliform rash all over the body and also on the face. There are no Koplik spots. A slight enlargement of lymph-nodes shows. The baby has a sister 3 years old who has not had measles or rubella. The latter had no symptoms of an eruptive disease in the following month.

Case 23.—A. G., a boy, 1 year old, was fed on malted milk since 3 weeks old, and was also given orange juice and prune juice. The child had an attack of diarrhea at 11 months, when first seen. There is marked evidence of rickets. The food was changed to milk and barley-water with malted milk; also bread and vegetable soup were taken. Improvement was rapid on this food. Three weeks later the boy was suddenly taken ill with a temperature of 105-2/5. (Oct. 15, 1912.) The fever continued for three days, when an eruption appeared on the abdomen. This maculopapular eruption became very profuse in the next twenty-four hours though not much appeared on the face. Confluent dusky-red patches appeared over the buttocks. The temperature became normal October 19. There were no Koplik spots and no catarrhal symptoms. This boy was very sick.

Case 24.—B. S., a girl, 10 months old, had severe gastro-enteric intoxication during the past autumn. (Jan. 1, 1912.) The child had high fever for two days. The temperature now is 103 3/5. There are no catarrhal symptoms and no digestive disturbances. The throat is about normal. The ear drums are in normal condition. The diagnosis was very puzzling. (January 2.) The baby is broken out with a macular eruption; the lesions are circular, large and small, and rose-red. The temperature is 100 2/5. There are no Koplik spots and no catarrhal symptoms. The child was well the next day, the rash fading. There was no desquamation.

Case 25.—J. H., a girl, 1 year old, had been breast-fed until recently but is now on a mixed diet. The bowels were loose three days ago and have been slightly loose since. There has been no vomiting. High fever was present for two nights (102), the fever continuing for two days longer. (April 9, 1911.) Morbilliform eruption has appeared. There is no fever and the pulse is slow. Diarrhea has ceased. The child recovered promptly of all symptoms.

Case 26.—L. G., a girl, 7 months old, has been fed on a whey and milk mixture. As a young baby the child suffered from severe vomiting, though it looks well now. The patient (Jan. 21, 1912) has had severe catarrhal symptoms for three days—other members of the family have the grip. The baby has had fever (102). A slight diarrhea is present. Roseola has appeared on the body to-day and a rapid defervescence of the symptoms has followed. This baby had several drugs for its "cold." It may have been a symptomatic rash.

Case 27.—E. H., a girl, 7 months old, was nursed for three months, then fed partially on the bottle—a mixture of milk, water and milk-sugar being given. The child did well on this food. June 10, 1912, the baby began to be restless and feverish, and had one fermented stool. The patient was put on barley-water, June 11. The temperature rose to 103 in the afternoon. There was no diarrhea and no catarrhal symptoms though there was a slight sore throat. June 12, a very profuse eruption appeared which looked like German measles. The temperature is 100. There are no Koplik spots. The baby has lost its drowsiness. A sister, aged 5, had no such eruption before or afterward.

Case 28.—C. T., a boy, 10 months old, has a sister, aged 5, who had not had rubeola or rubella. The child has been restless and feverish for several nights. To-day (March 28, 1913) he is broken out with a morbilliform rash. There is no fever and no catarrhal symptoms or digestive disturbance. The child has been fed on milk and barley-water.

Case 29.—A boy, 13 months old, has been fed on some milk and solid food, including potatoes, bread, oatmeal gruel, baked apple, beef juice and cow's milk to which extract of malt has been added to prevent constipation. (April 17, 1913.) The patient has had fever for three days which ranged from 101 to 104. There is much restlessness, but no sore throat, no cough and no enlargement of the lymph-nodes. A morbilliform rash has appeared. There is no fever. The recovery was rapid. There are no other children in the family. The child lives in an apartment.

Case 30.—B. L., a boy, 18 months old, took scarlet fever of moderate severity Feb. 1, 1913. March 4, 1913, when he had recovered almost completely, the temperature rose to 103, and a variable temperature persisted for three days. There was a slight coryza and some cough. A fine roseolar eruption appeared on the body. The temperature was 101. There were no Koplik spots. The temperature was normal on the following day. There is no other child in the family.

Case 31.—L. M., a boy, 21 months old, has been fed on a mixed diet. Feb. 13, 1913: The fever began four days ago and the child has since been restless. The mother noticed a rash to-day. Maculopapular spots cover the trunk and limbs but few are on the face. There are no Koplik spots and no fever, but there is a slight enlargement of the lymph-nodes. No sore throat is present. The child is suffering also from a frost-bite on the left cheek. There is a younger baby brother. No more fever is shown. There are a number of cases of measles in the neighborhood.

Case 32.—E. M., a girl, 15 months old, has been on a mixed diet, and is well nourished. The baby lives in an apartment and has had high fever for three days. There is a slight exudate on one tonsil. The child is restless at night. The temperature is normal to-day. A morbilliform rash covers the whole body but there is little on the face. There was a rapid recovery without drugs. She had received two doses of acetphenetidin before the appearance of the eruption. No digestive or catarrhal symptoms were observed. There is only one child in the family (March 28, 1913).

Case 33.—B. S., a girl, 3 months old, breast-fed, had fever for three days when the rash appeared. The temperature was still 103 when the eruption was noticed. The next day the fever had dropped to 99½. The rash is morbilliform and erythematous. There is intense congestion of the skin. The infant is restless. There are slight catarrhal symptoms. No Koplik spots are present. The stools are frequent and watery (Jan. 12, 1912).

ABSTRACT OF DISCUSSION

Dr. F. P. Gengenbach, Denver: It is important to recognize this eruption, especially in hospital work. I have seen several of these cases in children's hospitals in Denver. Needless to say we were all much alarmed. I think that in most cases the patients do not have such high fever. When they do, we think of scarlatina. As Dr. Zahorsky has said, these cases have never proved contagious. I have never seen other cases develop in the hospital after one of these cases. They do frighten us, however, and I think that we should be able to recognize them.

Dr. H. W. Cheney, Chicago: I wish to add to Dr. Zahorsky's statement that I have seen in recent years a number of these cases corresponding to his clinical picture, coming on with this indefinite fever and then a rash. I have been inclined to classify them under rubella or German measles and think that perhaps we had better cling to that term rather than make a new classification which might confuse many who are not careful observers. We know that German measles is not always contagious. Then, too, in German measles there is frequently fever several days before the eruption. I should be inclined to classify these as typical cases of rubella.

Dr. John Zahorsky, St. Louis: As I mentioned, these cases are usually diagnosed as German measles, but the syndrome is so peculiar and typical that I think it deserves a special place. We might regard it as German measles until we can establish a definite place for it. Its contagiousness has never been demonstrated. German measles and measles are contagious diseases, but these roseola cases are not contagious, so far as my observation goes. These cases show a clinical syndrome so clear and distinct that it should always be borne in mind when trying to make a diagnosis. Therefore, I think that it deserves a place—temporarily at least.

JOINT-DISEASE DUE TO INFECTION FROM OTHER PARTS OF THE BODY*

J. W. COKENOWER, M.D.
DES MOINES, IOWA

The frequency of joint-disease and its often uncertain etiology constitute a problem whose factor has contributed largely to the unsatisfactory differential diagnosis of the various kinds of joint ailments. After looking up the literature on the subject for the past four years and failing to find scarcely anything published on it, I wrote a number of orthopedic and general surgeons for clinical reports. These unpublished reports have assisted materially in the preparation of this paper.

I believe that our failures in treating joint-diseases are due more to wrong diagnosis than to improper treatment, and back of this a lack of the knowledge of the anatomic structure of the joints as well as the pathology of the disease.

The differential diagnosis may be specific, pathognomonic, negative by exclusion, collateral or by exhaustive history of the case from infancy to the present time.

It will often be necessary to have regional experts to assist, and with the help of roentgenography and bacteriology we have the best means at our command; but we must not forget, omitting trauma, that arthritis is only a symptom of a disease or diseases whose real nidus is in some distant part of the body.

The presence of a urethritis or suppurating antrum may be the only diagnostic points between two cases in which the patients are suffering from apparently identical joint lesions; but the one is gonococcal, the other septic; hence the antrum in one and the urethra in the other must receive our attention in order that we may obtain satisfactory results. Syphilis and certain other diseases are quite different after the initial stage, because it is then a septicemia and has no known nidus, but consists in polymorphic manifestations, of which arthritis is one.

There can be no doubt that in chronic joint cases the diagnosis in children lies chiefly between tuberculosis, on the one hand, and the manifestations of sepsis, rickets, congenital syphilis and coxa vara, on the other; and in early adult life special forms of septic infection from gastro-intestinal and genito-urinary tracts are most common, while in late adult life chronic septic infection of the mucous tracts of nearly all parts of the body must be considered and our success will be measured by the attention given them.

I wish to emphasize the importance of the oral cavity as a source of arthritis. The absence of all the teeth without replacement by artificial ones, is a sure proof of many years of oral sepsis. Gastro-intestinal sepsis and diseased tonsils and teeth make the mouth a septic laboratory for which in many cases the joints must pay the debt.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Therefore, the differential diagnosis of arthritis frequently depends, not on the examination of the local condition, but on the presence or absence of preceding or associated lesions in other parts of the body.

Another condition of the joints which must not be overlooked in our diagnosis, because it is often taken for inflammation when in fact it is not, is edema due to effusion. Joints depending on muscular tonicity are more frequently invaded. To illustrate briefly: An inflamed bicuspid tooth-socket will produce edema of the lower eyelid, and the collateral edema will be in proportion to the inflammation; hence, fluid by diffusion extravasates into not only adjacent, but also remote tissues of the body, and when prolonged will produce proliferation of the endothelium of the lymph-vessels and capillaries, resulting in permanent thickening of tissues. I believe that the same thing exists in joints and is not primarily due to disease of these structures.

Dr. George W. Crile reports a number of cases of joint disease due to endocarditis and streptococcus infection from other parts of the body and occasionally from acute abdominal infection.

Dr. Charles F. Painter reports having seen a number of cases in which arthritis symptoms were relieved with such promptitude after treatment of the tonsils and teeth that he was convinced that the infection was due to that source.

Dr. Roswell Park writes, in substance, that joint-disease due to infections from other parts of the body, especially the oropharyngeal cavity, is a subject much neglected, but certainly exists to a great extent; and the modern etiologist is proving this fact. Yet no one has written on the subject, but few authors have done more than refer to it, and Park admits that he is one of them.

Dr. John B. Murphy, one of our best known surgeons on joint-diseases and articulations, fully concurs with the general consensus of opinion on joint-disease due to infection from other parts of the body.

Dr. A. H. Freiberg has frequently succeeded in determining an antrum of infection, the removal of which cleared up cases of infectious arthritis. The most notable examples of this kind have been in connection with the genito-urinary tract.

In case of chronic infectious polyarthritis I believe that we shall have to depend on the increase of diagnostic skill in order to obtain better results; yet there is no doubt, in my mind, of the relation of these cases to an original infection somewhere else in the body.

Dr. A. E. Barker states that among the many non-traumatic ways in which joints may be infected through the blood-stream, less attention has been given to the entrance of bacteria from the gums than the subject deserves.

Every one is familiar with synovitis following gonorrhea or other forms of septic catarrh of the urethra, vagina and other parts of the body, but in many instances it may be difficult to trace the joint trouble to any of these; so it is well to examine closely into the condition of the oropharyngeal cavity in every attack of synovial inflammation of non-traumatic origin, because the so-called hemogenic infectious organisms introduced into the system through a very common septic lesion, pyorrhea alveolaris, are carried into the blood-stream and excite in the lining membrane of a joint-cavity an inflammation causing hypersecretion and ultimately suppuration.

Dr. H. M. Sherman reports that he believes there is a close relation between diseases of the joints and infections from other parts of the body, especially the tonsils and alveolae.

Dr. C. Stewart Wright of Toronto reports a number of cases of joint-diseases which proved to be due to infection from the tonsils and teeth, and concludes that they are the most frequent source of infection and believes that all chronic joint-disease, excluding tuberculosis, may be due to some disease, or some focus of infections elsewhere.

Dr. Arthur Steindler reports a number of chronic joint-disease cases, due to infection from the oropharyngeal cavity.

Case 1.—M. M., aged 20, March 25, 1912, had been treated previously for chronic arthritis of the knee, considered to be tuberculous, for six months. Then, following an attack of tonsillitis, the condition of the knee became suddenly worse, with acute swelling, soreness and tenderness. A few days later the characteristic spindle-shape swellings appeared at the knuckles. The tonsils were removed and under massage and bath treatment both the enlargement of the finger-joints and the acute swelling of the knee disappeared. The patient at present is fully recovered with almost normal range of motion and slight muscular atrophy.

Case 2.—Man, aged 28, referred by Dr. C. W., had an attack of rheumatism four years ago affecting both feet, especially the left. They were swollen and he was unable to walk for about four months, during which time he was treated at his home hospital, after which he returned and was able to resume work. He continued to work for over a year, and then had another attack more severe than the first, and for several months was under the care of his family physician. During that time his ailments had increased in spite of all the medicines, antirheumatic and otherwise, which had been prescribed, and then he was sent to Des Moines and referred to me.

A careful examination revealed no positive etiology, except that the oropharyngeal cavity showed quite a number of diseased teeth and pus exuding from gum margins. Believing I had found the cause of the trouble, I instituted the following treatment:

1. Dental treatment of the teeth and gums.
2. Local treatment of feet, hot fomentations, massage, uniform warmth and rest.
3. No medicine except regulating secretions, excretions, and plenty of water.

The dental report was nine teeth extracted and twelve requiring treatment. The gums and abscesses responded promptly to the treatment, and the striking feature was that all this time there were no seeming constitutional subjective symptoms.

The result was so satisfactory, after the removal of the cause, that in a month the patient was able to walk with ease, without pain or swelling, with the feet comparatively flexible, and no retrogressive symptoms since. Nature seems to be restoring normal conditions as fast as such fibrous changes permit.

Case 3.—Mrs. D., aged 45, had an attack of rheumatism, affecting the right knee, in June, 1911, causing her to be confined to the bed for several weeks, during which time antirheumatic and local treatments were given. For a while she seemed better, but soon had another attack worse than the first. She consulted physicians in Omaha and Chicago, who all agreed as to the rheumatic symptoms, but none seemed to locate the focus of infection. Returning to Des Moines she went to Mercy Hospital, and a thorough examination was made, including teeth and tonsils. Both were diseased and were the only pathologic conditions found which might be taken as the real cause of the joint trouble. I called in oropharyngeal specialists, who removed the tonsils and diseased teeth. During the three weeks following the patient improved rapidly and left the hospital in good shape and has done her accustomed work ever since, now almost two years, with no return of any joint-trouble.

CONCLUSIONS

1. The failures in treating chronic joint-disease are largely due to incorrect diagnosis.

2. All joint disease not traumatic or tuberculous is due to infection from other parts of the body.

3. No diagnosis is complete, especially when there is doubt, without the inclusion of the oropharyngeal cavity.

BIBLIOGRAPHY

Barker, A. E.: Lancet, London, 1912, ii.

Goadby, K.: Relation of Disease of the Mouth to Rheumatism, Practitioner, January, 1912.

Medalia, L. S.: Pyorrhea Alveolaris Causes and Vaccine Treatment, Report of One Hundred and Fifteen Cases, Dental Cosmos, January, 1913.

Cantlie, J.: Arthritis—Inflammatory Diseases of Joints, Lancet, London, 1913.

Stewart, C. S.: Chronic Infections as a Cause of Chronic and Subacute Rheumatism (Arthritis), Canada Lancet, April, 1913.

Grober, J.: General Principles for Treatment of Infectious Diseases, Deutsch. med. Wchnschr., April, 1913.

ABSTRACT OF DISCUSSION

Dr. Henry Ling Taylor, New York: In the study of joint disease, we should never employ the term "rheumatism" as a scientific name. It is not merely a matter of esthetics, but is exceedingly desirable on practical grounds, that we should abolish this term entirely; because when a polyarthritis is designated "rheumatism," a certain line of treatment naturally follows—the iodids, the alkalies or the salicylates, all of which are bad for chronic arthritides.

There is one point in Dr. Cokenower's paper, however, to which I think we can take exception; and that is the point of his having instanced endocarditis as a cause of arthritis. It seems to me that both endocarditis and arthritis are due to the same cause, namely, a focus of infection in the mouth, the antrum, the urethra or elsewhere in the body; that, at any rate, is my experience. We should not forget, however, that many cases are treated most searchingly and scientifically, but absolutely fail to respond to these methods of treatment. I have seen many cases that were handled by the best men in the country, with every opportunity for scientific research and painstaking treatment given the patients, who had had their teeth put in order, their tonsils removed, their colons elevated, and everything that one could possibly think of done for them, without the slightest benefit. I have now under observation a case of extreme polyarthritis —so-called arthritis deformans. The patient had had the disease first in one finger-joint. She had her tonsils removed and afterward became rapidly worse, so that now nearly all of her joints are affected. This, of course, is nothing against the author's position, but I do think that we must admit that there are many cases in which we are unable to obtain success along these lines, and that, in the present state of our knowledge, it is best not to claim too much.

Dr. Wisner R. Townsend, New York: I recently saw a patient, a youth of 17 years of age, in good physical condition otherwise, who had a sore throat. His physician believed that it was a case of diphtheria and ordered the administration of five thousand units of antitoxin, obtained from the board of health. This was given; yet the bacteriologic and microscopic examinations showed no bacteria, and in a few days the patient was apparently well. Two days later his ankle-joints began to swell; the swelling was accompanied by pain and a petechial eruption. This disappeared after a time. The temperature was 103 F. The condition was what would be termed a "rheumatism" of the ankle-joints. The interesting point is that within a week this young man's wrists, as well as the carpal joints, became swollen and painful; the question arose whether the condition was an infection from the pharyngitis or whether it was a condition of anaphylaxis caused by the diphtheria antitoxin. It is well known that the system of many persons will not tolerate horse-serum, which produces this condition in them. The men best qualified to speak about it thought that it was a case of anaphylaxis; we thus have another condition to consider when we meet with joint symptoms. If nothing had been said about antitoxin in this case, there would have been nothing to suggest that that was the cause of the condition, and the diagnosis would have been erroneous or, at least, incomplete.

There is another condition causing joint symptoms that has not been dwelt on sufficiently. Recently, in the city of Cortland, N. Y., we had four hundred cases of milk infection, the patients being affected with sore throat accompanied by arthritides in many instances. The throat affection was supposed to cause the joint symptoms and was due to a bacillus found in the milk. This, in turn, was due to an irritation of the teats of two cows. The infected cows were killed and the epidemic stopped. It will thus be seen that when we seek the origin of many of these conditions we must go further than the buccal cavity, although we must not, of course, forget that.

Dr. Fred J. Gaenslen, Milwaukee, Wis.: I should like to know what has been the experience of other men as to the effect of opening and irrigating joints in the type of cases which Dr. Taylor refers to, cases in which thorough examination does not reveal a focus of infection. Does irrigation of one or two joints most severely affected have a beneficial influence on the other joints involved?

Dr. Emil S. Geist, Minneapolis: It is my opinion that there are many cases of polyarticular trouble that we do not call infection because the primary condition, the infectious focus, is beyond our reach. When we do help, it is because the original focus of disease can be reached with an instrument six inches long. In other words, there are often hidden foci, difficult of access, that we are unable to remove.

I have learned that it is necessary to place these persons in the hands of the most competent specialists in order to obtain satisfactory results. A great many things that escape the ordinary dentist, for instance, will be found by the man who is accustomed to treating pyorrhea. Since I have learned to be particularly careful in this respect I have obtained much better results.

Dr. Albert H. Freiburg, Cincinnati: It is my experience that many cases, which in their clinical history are undoubtedly of the infectious type, fail to improve after we have attacked what we suppose to be the atrium of infection, or they reach a point beyond which we cannot bring about improvement in them. There are three reasons for this, the first being that a person often has more than one atrium of infection in his body, and that which we attack, because it is the most evident, is not necessarily the one from which the patient is absorbing the poisonous material. The second reason, I believe, is that when the polyarticular disease has been in existence for a certain length of time, pathologic changes have occurred in the joints in consequence of the infectious material there, and these require a separate and distinct treatment other than the removal of the atrium of infection, while we are prone to give our patients insufficient treatment after the atrium of infection has been removed. I have made a number of experiments with the material called fibrolysin, without much success. I have been successful only in cases of polyarthritis in which we believed that we had discovered the real atrium of infection. In these cases, after this had been removed and the patient reached a point at which improvement no longer took place, the administration of fibrolysin had a sufficient effect to cause improvement to begin. The third reason is that the atrium of infection may give little evidence of its presence and none that can be discovered by gross means; we sometimes have to resort to most thoroughgoing measures to discover where it is. A case in point was that of a married woman. She came to me with a chronic polyarthritis of the infectious type. She declared that she had no infectious disease in her body, so far as she knew, and we could discover nothing by examining the usual sites of infection or by examination of the genital tract. I had her blood examined, and the report came back negative for everything but the complement-fixation test for gonorrhea, which was positive. The woman had a small fibroid. Laparotomy was done and fluid was found in both tubes. Unfortunately, the specimens were not handled properly, but were put in formaldehyd immediately. Therefore I cannot say whether or not any bacteria would have been found in the fluid. The tubes were removed and the patient made a good recovery. She had believed that she was the subject of arthritis deformans and was doomed to become a permanent cripple. If we can obtain a result like that once in a while, it is worth making an effort for; and that such a result has been attained shows that we are on the right track in believing that the disease is infectious in origin and that we cannot cure such cases without disposing of the infectious atrium. We may therefore be able to do more for this class of cases which has puzzled us for so long.

Dr. Roland Meisenbach, Buffalo, N. Y.: I have for a long time been interested in those cases in which we attempt unsuccessfully to find the focus of infection, although we feel certain that it must be in several parts of the body—in the teeth, the intestines or the lungs or joints. All of those who examine roentgenograms carefully find that there are usually *foci* present in the lungs or other parts of the body, which in many instances are evident in the roentgenograms. I agree, in the main, with Dr. Cokenower's paper, but at the same time I am not willing to acknowledge that most of these cases of joint trouble are of the infectious variety. I think that we shall find by searching that many which are considered infectious are in reality due to a metabolic condition. I have had complete metabolism investigations made in many doubtful cases and have become accustomed to make the division on a somewhat arbitrary basis; for instance, those cases with temperature elevation are usually considered infectious, while those without temperature elevation may be considered metabolic. It is pleasing to see how many things in regard to the infectious type may be learned by the study of focal localization. I have for a long time been sending my patients to dentists, but have not had autogenous vaccines made from the teeth, for the reason that when the teeth are examined microscopically nine out of ten times the infection will be found to be caused by streptococci and staphylococci, so that it is a question which of these autogenous vaccines to inject. Dr. Cokenower's paper strongly suggests, I think, that the class of cases which come under the ruling of this paper are those which we see constantly, cases with peri-articular thickening and with slow, steady infection involving one or more joints, and in which the toxins and not the bacteria have entered the joint. In these cases the toxins are derived from different foci, which may occur in the lungs, teeth, genito-urinary tract and many other places.

Dr. J. D. Griffith, Kansas City, Mo.: I do not see why Dr. Cokenower excludes tuberculous infection, because I am satisfied that most of us have had infection of the tonsils and lymph-nodes. Why, therefore, should he exclude the tubercle bacillus as the cause of infection in these cases?

Dr. Clarence B. Francisco, Kansas City, Mo.: I wish to speak on the association of the tuberculous process with the infectious process. In going through the hospitals you are often shown patients with joint tuberculosis who have made remarkable recoveries. It occurs to me that possibly these joints were not really tuberculous, and that possibly the process seemed to localize itself in one joint and was mild in the other joints. At the Mercy Hospital at Kansas City, I have made all the tests on cases that came in looking like straight tuberculous hip, for example. We had three patients that had a little temperature and all signs of a tuberculous hip, yet the von Pirquet test was negative, and the blood analysis suggestive. When put in fixation, the patients would be relieved of their symptoms in a few weeks. The symptoms would return, however, if the fixation was removed. On having the tonsils of these patients removed or their teeth attended to, we found that it did not matter whether the fixation remained off or on; they were apparently cured. It occurs to me that some of these infections may localize in a joint and simulate a tuberculous process.

Dr. Gilbert L. Bailey, Oak Park, Ill.: Certain of these infectious types do localize in one joint, especially in the knee or hip, following typhoid, streptococcic and other infections, many of which have not yet been differentiated.

The question was asked as to the treatment of localized joint infections and the advisability of draining them. The course I have followed in treating these cases is, first, to remove the focus of infection, when it can be found, and to use the proper serum therapy, when the agent can be identified. Locally, traction is made to separate the inflamed joint surfaces and a splint applied to insure rest. If this is not effective in relieving the symptoms, tapping or, if suppuration is present, opening and cleansing the joint should be done as soon as possible as in any other abscess.

Dr. J. W. Cokenower, Des Moines, Iowa: My statement that endocarditis causes joint disease was a quotation from Dr. G. W. Crile of Cleveland, Ohio, as I have had no cases of that kind.

Another question was with regard to whether it is possible for us to ascertain definitely the nidus of infection. I do not quite agree in regard to that. I spoke in my paper about calling in experts. I never thought that I was competent to take up all the special lines of investigation necessary in these cases. There were specialists in other lines, and I consulted them. Whenever our treatment is not a success, I always think that the diagnosis is incorrect, and that it is time to stop and investigate. By doing that we have better success in our treatment.

I did not endeavor to convey any idea about treatment, for the paper was written simply with the one object in view of urging the necessity of finding out what we have to treat, and after we have done that it is my experience that the treatment is comparatively plain.

THE INJECTION TREATMENT OF TUBERCULOUS JOINTS *

LEONARD W. ELY, M.D.
SAN FRANCISCO

The treatment of all joint diseases, whatever their cause, seems to follow certain well-defined lines and in rather definite order. The first and second expedients resorted to are external applications and internal medication. If these fail we turn to the third, incision and drainage. This appears logical. If a joint is swollen, painful and inflamed, we infer that there must be something inside that is causing the trouble, and that if we let this something out the disease will heal. Failing here in our efforts we resort to the fourth, aspiration and injection. Here again we seem to be on safe ground. If we can withdraw from the joint cavity the products of disease and then can inject some beneficent substance, we shall be able to cure the disease. If by any chance, after trying all these methods of cure, we have not found the specific sought for, we are often obliged to study carefully the disease before us, its cause, pathology and course, and by hard work to devise a rational cure.

This entire routine is not observed in all joint diseases. In joint syphilis, treatment by internal medication and external applications suffices for a cure. In pus joints incision and drainage offer the best prospects.

For the treatment of tuberculous joints external applications without number have been tried in vain and internal medication had its day and has been cast aside. Tuberculous joints are daily being laid open and drained, but the operation has been proved worthless and, happily, is becoming obsolete.

The employment of injections in tuberculous joints goes back for over thirty years. The first mention I can find of it is an article by Mikulicz,[1] written in 1881. Von Mikulicz, working in Billroth's clinic, used iodoform. Many other substances have been used since, among them bone charcoal, iodin, phenol (carbolic acid), arsenious acid and corrosive sublimate, acidulated solution of calcium sulphate, zinc chlorid, balsam of Peru, naphthol camphor and formaldehyd solution.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Of all these substances iodoform has been advocated most strongly, persistently and enthusiastically. Its history interests us the most and is extremely instructive. Mark well how its advocates cling to it firmly, even after the rationale of its use has been shattered. This is often so in medicine. When authority reaches a conclusion, its conclusion continues to be accepted even after its premises have been proved false.

Mikulicz praised the "astonishing usefulness" and antiseptic action of iodoform. Baumgarten,[2] six years later, showed that it was not an antiseptic or bactericide. A change of front became necessary. Accordingly we find the statement that whereas iodoform may not be an antiseptic when employed in open wounds in which we can see it, nevertheless its nature changes when it is injected deeply into the tissues where we cannot see it, and it becomes again an antiseptic. Those who wished to use a true antiseptic, however, abandoned iodoform and adopted other agents.

Fraenkel,[3] in 1900, tested experimentally the action of various injected powders on the healing of wounds and used bone charcoal clinically in bone tuberculosis. Unsterilized iodoform and other powders provoked suppuration. Sterilized iodoform and certain other sterilized powders, notably bone charcoal, promoted healing. Fraenkel found that charcoal was more efficacious than iodoform and reasoned quite logically that no specific virtue resided in any of the powders, but that their action was purely mechanical, promoting healing by their irritation. He, like others, frightened apparently by authority, deals gently with the malodorous powder. If we adopt Fraenkel's chain of reasoning, we must acknowledge that sterile foreign bodies promote healing of a tuberculous lesion. If we reject them, we reject sterilized charcoal and iodoform as being useless.

Iodoform has been used in solution in ether and alcohol, and in suspension in water, in glycerin and in oil. Krause,[4] one of its most eminent advocates, published his results after one and one-half years and had a high percentage of cures. He was confirmed in his favorable opinion because in one patient who had been injected and who later had an arthrectomy performed, "the synovia in many places did not show the picture of tuberculosis." We know now, however, that this is often true in patients who have not been injected. The synovia in many places may not show any signs of tuberculosis, especially on its surface.

Most of Fraenkel's cases were of cold abscess. He called them "permanently healed" when they had been apparently healed for three months. It is now well known that cold abscesses often disappear under the simple treatment of aspiration or without any treatment.

One of the strongest arguments that could be brought forward for the use of iodoform was that tubercles were absent from the wall of cold abscesses whose cavities had been filled with an iodoform mixture, but since we have learned that tubercles are not ordinarily present in these walls, this argument loses force.

If we examine carefully the evidence for iodoform after thirty-two years of trial we find that it consists almost exclusively of unsupported clinical opinion. This does not necessarily condemn it, but when an approximately equal weight of unfavorable clinical opinion is produced on the other side, we are justified in demanding some tangible proof of the usefulness of iodoform. Failing this, we should adopt a form of treatment whose efficacy rests on something else than contradictory clinical experience. Iodoform is not widely used in this country at present, except by those who possess an extreme reverence for foreign authority.

The other substances mentioned rest their claims on much the same basis as does iodoform. Most of them have been advocated vigorously for a while, and then have lapsed. The later ones, notably formaldehyd solution, are still being tried.

It is as rational to attempt to cure a tuberculous joint by injection of the synovial cavity, as to cure a tuberculous lung by injection of the pleural cavity.

There are two different ways of viewing tuberculous tissue, one as essentially diseased tissue which must be eradicated completely at any cost, the other as Nature's reaction against the presence of tubercle bacilli. If we adopt the latter view we shall discount immediately the ability of any substance injected into a joint to destroy the infection, and shall ascribe any healing effect it possesses to its aid to Nature in the healing processes she has already inaugurated. Foremost among these is the production of fibrous tissue.

Leland Stanford Junior University, College of Medicine.

ABSTRACT OF DISCUSSION

Dr. Fred H. Albee, New York: I should like to ask Dr. Ely whether or not he did any pathologic work on the effect of formaldehyd.

Dr. John Prentiss Lord, Omaha, Neb.: I have given some attention to the theories of Dr. J. B. Murphy in regard to the use of various substances for increasing the local blood-supply and the leukocytosis—the reaction occurring to organisms that infect the knee-joint, and more particularly the pyogenic group. Dr. Ely concludes that this effect can be only mechanical; I wonder whether an acute suppurative knee would contain the germs on the surface and would be more readily affected by such a process than by a tuberculous process which seems to be more deep-seated and to have produced a greater infiltration, so that any mechanical or irritating agent could have but a surface effect, as it were, on the joint. We can conceive that it would be beneficial, if the original infection were in the joint, and if the supply of infection were neutralized or shut off, in removing the primary focus, in order that the secondary changes might disappear; just as on the removal of primary tuberculous foci elsewhere, we find the process clearing up in a remarkable way. It would seem to me that we are perhaps dismissing this matter in a too self-confident way when we conclude that it is a purely mechanical effect, although Dr. Murphy firmly lays down the dictum that this is the best treatment for a suppurative joint, and in some of his cases would seem to prove the truth of that assertion. Dr. Ely, on the contrary, lays down the dictum that a suppurative joint should be opened and drained and that that is the best treatment; while Dr. Murphy states that it is the worst treatment—that to open and drain a suppurative joint means to produce a stiff joint. I have seen him show cases in which, by the bismuth-turpentine or the formaldehyd-glycerin treatment, joints were preserved as useful subsequently to that diseased condition.

Dr. J. D. Griffith, Kansas City, Mo.: If I understand Dr. Ely correctly, he takes the ground that this tuberculous

---

1. Von Mikulicz: Berl. klin. Wchnschr., 1881, xviii, 230.
2. Baumgarten: Berl. klin. Wchnschr., 1887, xxiv, 354.
3. Fraenkel, A.: Deutsch. med. Wchnschr., May 22, 1902, p. 387; Wien. klin. Wchnschr., 1900, No. 47, p. 1085.
4. Krause: Berl. klin. Wchnschr., 1889, xxvi, 1058.

deposit is in two places, the synovia and marrow; his idea is that you do not reach the disease by the injection of iodoform, or anything else, where you can destroy this tuberculous process. Is that it?

DR. ELY: Yes.

DR. GRIFFITH: If I understood Dr. Murphy's idea correctly, his injection of a 2 per cent. dilution of liquor forhaldehyd in glycerol (glycerin), more than twenty-four hours old, is for the purpose of reaching the joint surface itself. I do not think that Dr. Murphy would maintain that the injection of formaldehyd, after the tuberculosis has become marked, would eradicate or stop the process. This is not a suppurative joint, as a rule. There is not a mixed infection, but only the tuberculous disease. Mixed infection does not occur until after the disease has progressed. By opening the joint we expose it to infection. Synovial involvement occurs generally in persons beyond the age of adolescence; but in the young child you find the epiphyseal involvement just commencing in the bone. I do not believe that you can reach the point of involvement in either adults or children, because the grown man does not come to you for treatment until the process has gone on to the point of erosion of the cartilage and probable bone involvement, and in the child you cannot reach it because you do not reach the disease of the bone by the injection.

DR. LEONARD W. ELY, Denver: I have never used formaldehyd. While it does not strictly bear on the subject of the paper, the introduction of Dr. Murphy's view is, I think, valuable at this time. In all this work we must discount what a man says. That is, we must make him prove his statements. We must not be overcome by the eminence of his name. It seems to be pretty thoroughly established that a joint may contain a few white cells on aspiration, and yet recover promptly and with good function under the treatment by aspiration; but I do not believe that if it contains puscocci this treatment by aspiration will cure it, any more than it would cure acute abscess anywhere else in the body. Murphy bases his whole theory on an absolutely erroneous idea of the pathology of the disease. In the first place, there are no endothelial cells, delicate or otherwise, on the surface of the synovial membrane, because the synovia is not an endothelial membrane at all, but a connective-tissue membrane. On its surface, or rather in its substance near the surface as seen under the microscope, there are numbers of small, round cells. They are not pavement endothelium at all. That is his first error. His second idea is that the exudate in the joint destroys these cells and damages the cartilage. Probably every one of you has opened a chronically diseased joint, full of fluid, tuberculous or otherwise, and found the cartilages perfectly smooth, glistening and in good condition, if the joint has not been immobilized. In other words, fluid in the joint does not damage the cartilage at all. You often find, too, that instead of the delicate "endothelial" membrane being damaged, that is, the synovia being destroyed, it has, on the contrary, proliferated. The fluid causes the synovia to proliferate and form folds and reduplications. Either there is an exuberant synovia or it has been replaced by fibrous tissue. Murphy makes his third error by saying that he reduces this damage to the cartilage by extension, thereby diminishing the pressure of the fluid on the cartilage. Assuming that you could pull a joint apart and that it was full of fluid, the more you pulled the more you would exert pressure by the fluid on the cartilage. The fluid in the joint is not responsible in any way for the damage to the cartilage. The damage is done by disease in the bone-marrow beneath it. If you make an opening in one of these acute pus cases you will find the marrow badly diseased, thus depriving the cartilage of its nutrition and killing it. We assume that the fluid exudate is what is causing the disease in cases of joint involvement; but we no longer assume that in the case of the lung. We do not think that by withdrawing fluid from the pleura we can cure disease in the lung. The fluid accumulates in the joint from a purely mechanical reason—because it cannot accumulate anywhere else. The fluid, however, is not the disease, but a symptom.

VARICOSE VEINS AS DESCRIBED BY HALY ABBAS

DOUGLASS W. MONTGOMERY, M.D.
SAN FRANCISCO

Recently Paul Richter of Berlin has given a translation of the dermatologic portion of a treatise on medicine written in the tenth century after Christ by Āli ibn al-Ābbas commonly called Haly Abbas, a Persian who wrote in Arabic, the then dominant tongue.[1] The entire translation is most interesting and among other subjects includes a number of shrewd statements in regard to varicose veins and their associated diseases. Haly Abbas goes on to say, "Furthermore what appertains to both feet as elephantiasis, and the veins that are known as varicose veins, and the ulcer that is recognized as being peculiar to the city of Balkh."

Further along he practically repeats this statement with a slight extension:

"On both feet and on both legs there arises elephantiasis, the veins that are called varicose veins and the ulcer which is recognized as being peculiar to the city of Balkh. Elephantiasis is a black bile swelling that occurs on the legs and feet, and its symptom is that thereby the form of the foot is like that of an elephant's foot, and grows no thinner, like the shape of the body.

"Varicose veins are filling of the veins and their thickening, and they arise from a black bile mixture, which is poured into these veins and fills them, and they arise mostly in those who overwork their feet, and stand long on them, and through prolonged work of the body. In this way the mixture sinks into the veins that are in the legs, and therefore this happens mostly in peasants, porters and sailors, and the symptom of this disease is that these veins become tortuous and thick, and incline to be green or black in color, even if only slightly so.

"The ulcer peculiar to the city of Balkh arises on the leg, and its symptom is that it is an ulcer the place of which is circular and round, and that it tears up by destructiveness whatever is round about, and its healing is difficult.

"Of that that occurs on the hands and feet, the Medina-vein occurs on the leg and on the joints of the hands, and at times, in boys, in the groins, but rarely. Generally this disease occurs in hot countries, as in India, Egypt, and Abyssinia, and it is a disease that arises under the skin like a vein, and distinctly moves, as worms move, and if the place of the head of this vein opens, pains ensue."

Paul Richter said that the "medina vein" is the disease caused by the filaria medinensia. Balkh ulcer is ulcer of the leg, called after the city of Balkh in Bactria, modern Afghanistan; but why it is so called is a mystery.

Elephantiasis is elephantiasis Arabum, pachydermia, and not elephantiasis Graecorum, which is leprosy.

The Arabic name of varicose vein, dawali, a vine, is in itself beautifully descriptive. Furthermore, when we reflect that Haly Abbas was able to associate elephantiasis and ulcer of the leg with varicose veins, and in addition knew that varicose veins occur mostly in working people and those who stand at their work, and all this with no knowledge of the circulation, we must give him credit for knowing something of his subject from a purely clinical point of view. He was also aware that varicose ulcers are circular in shape, that they occur on the legs, that they sometimes spread with explosive rapidity, causing the tissues to melt down before their advance, and that they heal very slowly.

---

[1] Richter, Paul: Arch. f. Dermat. u. Syph., cxiii.

Haly Abbas does not mention the occurrence of ulcer of the leg or varicose veins in women, although in a modern American or European practice, among the well-to-do, many more women are seen with these affections than men, because of their dependence on the tumor of pregnancy. The reason for the omission probably was that Mohammedan women, then, as now, were supposed to have no souls, and their bodies were prized accordingly, and furthermore in a harem land it is improbable that Haly ever saw an ulcer or a varicose vein in a woman.

Not alone does Haly Abbas not mention the occurrence of varicose veins in women, but he makes no mention of treatment, excepting that ulcer of the leg heals with great difficulty. It must be borne in mind that he lacked all knowledge of the venous circulation, a knowledge that now forms the keynote of all our care of this condition.

This capital disadvantage in the ability to treat this condition, together with the poverty of the male patients who were afflicted with varicose veins and ulcer of the leg, would deter such a man as Haly Abbas from giving them attention, as neither honor nor fee would be his reward. In fact, it would be an anachronism to imagine such a "swell," whose very name, Ali, means sublime, attending at all to the ailments of lowly creatures such as slaves and women. It must be remembered that the prosperous workingman, who often nowadays gets far better attention than the very rich, is a modern invention.

Treatment, however, may have been the farthest from the thoughts of the Arabian scholar in writing a treatise on medicine. We are so used to looking on medicine from the point of view of treatment that it is difficult for us to regard symptoms as being employed exclusively to elucidate theoretical or ethical points, but it is possible that the study of medicine for this scholar of the tenth century was almost entirely abstract or academic. He makes one minute clinical observation that might lead to suppose this to be a fact. He says that "the veins are green or black in color even if only slightly so." Previously to reading Paul Richter's translation, I had paid no attention to the color of varicose veins further than that they had a deep, dark tone especially when large and tortuous, and this all seemed so natural as a consequence of the excessive saturation of the blood with carbon dioxid, as not to be worth remarking. The veins have a green tint also, occasioned by the blue color shining through the yellow epithelial layers of the skin, and as this yellowness becomes more marked with advance in years, the consequent green tint is particularly well seen in a disease of middle or elderly life like varicose veins. Haly undoubtedly ascribed these colors to the presence of his favorite black bile. He knew that bile was dark or green, just as he knew that it was yellow, and was likely only interested in varicose veins because they showed the dark blue and the green particularly well. He also probably knew of the connection of the hepatic vein with the inferior vena cava, and he thought that the bile was simply poured out of the liver through this channel and sank down into the lower extremities. This is interesting as showing how acute observation may be, directly that facts are sought to substantiate a belief, and this belief in the humors of the body was probably elevated in him into a sort of learned cult or religion. In all ages, human beings see what they desire to see, and according to their favorite theories.

Like his predecessors, the Greeks, Haly was a humoralist, and therefore ascribed almost all diseases to a faulty mixture of the humors of the body. Itchy and scaly diseases, for instance, were held to be caused by a mixture of the phlegm and the blood overloaded with gall. Other troubles were thought to be occasioned by the skin being too weak to get rid of the impurities of the body in people who ate bad food or food that gave rise to noxious juices, or in those who did not take warm baths. Haly speaks of the black bile, of the sharp yellow bile and the salty, phlegmatic mixture that mingles with the blood. He mentions the coarse, sticky phlegm that prevents the vapors from escaping. He also speaks of the good vapors. In fact, if Haly could be resurrected now, after ten centuries of life in the shades, he would not find so much difficulty in getting his clinical knowledge in touch with a modern laboratory worker. He would find that the bad vapor, carbon dioxid, and not the black bile, was the cause of the darkening of the veins, and he would quickly forget all about the green tint he had previously observed, and he would go away as elated as either you or I with this or any other explanation.

323 Geary Street.

NEGATIVE RESULTS WITH THE NINHYDRIN REACTION AS A TEST FOR AMINO-ACIDS IN THE SERUM OF NEPHRITICS AND OTHERS *

RICHARD M. PEARCE, M.D.
PHILADELPHIA

The use by Abderhalden of "ninhydrin" (triketohydrindenhydrate) as an indicator in his test for pregnancy, and especially his experimental work with Lampe,[1] in which ninhydrin was used to demonstrate amino-acids and related bodies in the serum, suggested the possible application of the test to the serum of persons suffering from nephritis, the intoxications of pregnancy and other conditions characterized by so-called nitrogen retention. Although our knowledge of the minute amounts of amino-acids in the serum and Abderhalden's statement that ninhydrin fails to react with an amino-acid (Glycocoll) when the dilution is greater than 1 : 11,000 presaged failure, it was deemed advisable to give the test a trial, especially as the labor of the procedure could be greatly lessened by using serum filtrates prepared in connection with other work[2] going on in the laboratory at the same time. Serums were obtained chiefly from nephritics and pregnant women—a total of 47 serums—in the hope that occasionally one with severe intoxication might yield positive results. The first group included acute and chronic nephritis with and without edema, uremia or high blood-pressure; the second, normal pregnancy, eclampsia and vomiting of pregnancy. Positive results were not obtained. In every instance in which coagulable protein was entirely

---

* From the John Herr Musser Department of Research Medicine, University of Pennsylvania.

[1] Abderhalden, E. and Lampé, A. E.: Weiterer Beitrag zur
Kenntniss des Schicksals von in den Magendarmkanal einge-
führten einzelnen Aminosäuren, Aminosäuregemischen, Peptonen
und Proteinen, Ztschr. f. physiol. Chem., 1912, lxxxi, 473. Abder-
halden, E. and Schmidt, H.: Ueber die Verwendung von Triketo-
hydrindenhydrat zum Nachweis von Eiweissstoffen und deren Abbau-
stufen, Ztschr. f. physiol. Chem., 1911, lxxii, 37; Einige Beobach-
tungen und Versuche mit Triketohydrindenhydrat (Ruhemann),
Ztschr. f. physiol. Chem., 1913, lxxxv, 143.

[2] Farr, C. B., and Austin, J. H.: The Total Non-Protein Nitro-
gen of the Blood in Nephritis, Jour. Exper. Med., 1913, xviii, 228.
Farr, C. B., and Williams, P. F.: The Total Non-Protein Nitrogen
of the Blood in Pregnancy and Eclampsia, Am. Jour. Med. Sc.,
1913, cxlvi, in press.

removed the test was, as one would expect it to be, negative.

The technic was to remove the coagulable protein in 10 c.c. of serum by the method of Folin (absolute methyl alcohol and zinc chlorid), evaporate the filtrate to dryness and take up the residue in distilled water. This filtrate was then made faintly acid with acetic acid and boiled and filtered to remove any trace of coagulable protein. To the resulting filtrate, after neutralization, was applied the ninhydrin test as used by Abderhalden, that is, to 10 c.c. of filtrate, 0.2 c.c. of a 1 per cent. watery solution of ninhydrin was added and the mixture boiled for one minute.

A few tests were made also with ascitic fluid, but with like negative results.

In connection with this report of negative results, the usual apology is offered; it may save someone unnecessary labor.

University of Pennsylvania.

PASSAGE THROUGH GASTRO-ENTERIC TRACT OF BLACK-HEADED PIN, WITHOUT SYMPTOM

P. J. MANGAN, M.D., WINNEMUCCA, NEV.

Elizabeth M., aged 3 years and 10 months, swallowed a black-headed pin. I was consulted two days later. There being no untoward symptom, pultaceous food was advised, and close watch was kept of the stools. On the ninth day following its entry by the mouth, the pin, measuring 40 mm. in length, and lightly coated with mucus over the sharp end, passed by the anus. No inconvenience was experienced at the time and there has been none since.

HEPATIC ABSCESS (NON-AMEBIC) AND GASTRO-INTESTINAL MYIASIS

GLENN I. JONES, M.D., LUDLOW BARRACKS, MINDANAO, P. I.
Lieutenant, Medical Corps, U. S. Army

History.—The patient, Private P., was a soldier, aged 24. Family and previous history were negative, so far as referable to present illness. After several months' field service in Jolo, P. I., the patient was admitted to hospital at Augur Barracks, Jolo, P. I. Several days after admission he was transferred with his company to Ludlow Barracks, P. I., where he first came to my attention, April 5, 1913. Examination indicated tropical hepatic abscess, right lobe. Blood was positive for *Plasmodium falciparum.*

Treatment and Course.—The condition of this patient at the first examination (April 6, 1913) was critical; hence operation was postponed. Intramuscular injections of quinin were administered daily for two weeks. The patient improved slightly under quinin. Prostration increased, however, because of anorexia and hyperemesis.

Operation and Result.—After several days of rectal nourishment and stimulation, the patient was operated on, April 18, 1913, with evacuation of pus from right lobe of liver and perihepatic tissues. Postoperative progress showed improvement for several days and the temperature became normal, but gastric irritation persisted despite proctoclysis and rectal alimentation. The wound was closed (except for drainage sinus) April 23, 1913. April 24, 1913, the wound was reopened through the sinus and the right hepatic area was explored.

While the patient was under primary anesthesia, gastric lavage was practiced with a view to amelioration of hiccup and anorexia. The return contained between twenty and thirty living larvae of *Musca domestica.* The patient died April 25, 1913.

Necropsy.—Larvae were absent in the stomach, although the gastric mucosa was hyperemic and studded with hemorrhagic erosions. The entire right lobe of the liver had been destroyed and the cavity contained pus negative for entameba. Repeated examinations of feces during life had been negative for entameba. Perigastric and perihepatic recently formed adhesions were found at necropsy. No larvae were found in tissues or organs.

Inquiry as to camp conditions while the company to which this man belonged was at Jolo shows that flies were a pest and an anti-fly campaign had been inaugurated.

A case of intestinal myiasis was accidentally encountered at this hospital prior to observation of the case reported. The patient complained of attacks of pain resembling enteralgia (without febrile reaction) at irregular intervals. Attacks seemed not to have been influenced by dietary indiscretions. The larvae were finally observed grossly in freshly passed feces. Dietetic treatment and intestinal antiseptics by mouth and by rectal irrigation have apparently destroyed and evacuated all larvae. Periodic attacks have disappeared and no larvae have since been passed in the feces.

Therapeutics

TYPHOID FEVER

It is not necessary to mention that typhoid-fever bacilli enter the body by the gastro-intestinal tract, except to reiterate the many times repeated caution against uncooked infected food, milk, water or other beverage, contamination of these substances by flies (which may be carriers of these germs), and even against cleaning the teeth or bathing with infected water. Vegetables that are not to be cooked, such as lettuce, celery and radishes, may be infected by washing in impure water. Many of these latter sources of infection are readily forgotten or overlooked. Doubtless a certain number of these bacilli entering a perfectly healthy stomach may be there killed, but if the gastric juice is not in perfect condition, or if protective surroundings of the bacilli have prevented the gastric juice causing their death, or if large numbers are taken, they will reach the intestine. They here find in the alkaline half-digested food splendid mediums for their growth.

It is stated that these bacilli produce a toxin which more or less irritates and perhaps injures the mucous membrane of portions of the intestine, such injury allowing more readily the bacilli to enter the solitary glands and Peyer's patches. Sooner or later these bacilli reach the blood-stream through the lymph channels and may be there found, showing that typhoid fever is a bacillemia. The result, besides the local injuries and inflammation in the intestines, is a more or less high, continued fever, an enlarged spleen, more or less toxemia from the soluble toxins produced, more or less symptoms from putrefactive conditions that occur in the intestine, and one or more of the various complications that can occur from this serious disease.

PROPHYLAXIS

One of the greatest national sanitary questions to-day is the prevention of typhoid fever. Typhoid fever does not occur except by the carelessness of someone, or by the omission of some precautionary measures by someone. Every typhoid patient is a danger, not merely until he has recovered, but until he is not a carrier of typhoid bacilli.

It is not necessary here to repeat again the sanitary and hygienic rules and regulations for the personal care of a typhoid patient, which are generally well understood by physicians and nurses. The fresh air and sunlight that he needs, the absolute cleanliness, the care of the bed-clothing, the proper care of the excreta, even bronchial, mouth and nasal mucus, the screening from flies, etc., are all well understood; but the patient is allowed to convalesce completely and to go back to his active life, or at least to mingle with others, without establishing the fact that his intestinal canal and the urine are free from typhoid bacilli. Bacteriologic tests should certainly be made to show that a typhoid convalescent is not a source of danger to others.

Under prophylaxis must now be classed the prevention of typhoid fever by inoculation with dead typhoid bacilli. Such prevention has now well passed the experimental stage, and it is a fact that these injections of dead typhoid bacilli will and do prevent typhoid fever, and many boards of health will furnish these vaccines free for use on patients who are unable to pay the small fee charged for them. All young physicians, nurses, orderlies, boys and girls who leave home for seminaries or colleges, or any one who intends to travel where it is impossible to guarantee that every drop of water used or taken, or that the milk or food may not be contaminated with typhoid bacilli, should receive the preventive inoculations.

There seems to be less tendency to acquire this disease after 45 or 50 years of age, but all persons who are more or less constantly exposed to typhoid fever and who have not had the disease should certainly seriously consider the advisability of preventive inoculations.

To protect against typhoid fever three inoculations seem to be needed. The first dose should contain about 500 million dead bacteria, and in ten days a second injection should be given of about 1,000 million dead bacteria, and in another ten days the last and third injection of another 1,000 million killed bacilli should be given. Ordinarily the reaction is not great. While injections are often given to patients who continue their work, it would seem at least advisable to give the injection early in the evening, that the patient may rest for twelve or fifteen hours, and longer if there is a fever reaction.

It has been urged that with the typhoid injection dead paratyphoid bacilli should also be administered, as probably many times with the typhoid bacilli are also associated paratyphoid germs. As there are known to us at present, however, several types of paratyphoid bacilli it seems hardly advisable to recommend such injections for the present.

SPECIFIC TREATMENT

First, as to the vaccine treatment of the disease, there seems to be a growing belief that vaccination will hasten a slow recovery and prevent relapses during the fever. Also, it seems to be the proper treatment, and almost the only satisfactory treatment for typhoid carriers; and perhaps it will be wise to give such vaccinations after apparent recovery from typhoid fever even if there are no typhoid bacilli demonstrable in the feces or in the urine, on account of the possibility of such bacilli being lodged in the gall-bladder or elsewhere.

Vaccination has also been done during the acute fever, but, many times reported, without any apparent advantage. On the other hand, Dr. B. M. Randolph[1] of Washington, D. C., has treated a few cases by vaccination and thinks that he has positively seen improvement. He thinks that severe cases of typhoid fever have been modified to mild ones. The vaccine treatment of the acute stages of typhoid fever, however, is still experimental.

Up to the present time there certainly is no specific treatment for typhoid fever. Ipecac has been advised by some clinicians as being of value, much like its action in dysentery. It has been given in good-sized doses, in salol-coated capsules to prevent the irritation of the stomach and consequent nausea and vomiting. The ipecac treatment, however, has not many followers.

DIET

The diet in typhoid fever is excessively important. The many investigations into diarrheas, especially in children, has demonstrated how much the bacteria of the intestine may be changed by variations in the food. On any one kind of diet the bacteria of the intestines, or intestinal flora, remain about the same during health. If this diet is changed for another, for instance from carbohydrate to protein, the flora change. In brief, it has been shown that a diet of carbohydrates favors the growth of a certain kind of bacteria, which, however, bring forth more or less non-toxic products which inhibit their own growth. A protein diet, on the other hand, allows bacteria to develop and fermentation to occur, and products are absorbed that are more or less toxic to the economy, especially if the bowels are not thoroughly moved, and the membrane of the intestines is in such a condition as more readily to absorb toxins than normal, which conditions are present in typhoid fever. A diet that allows such fermentation and putrefaction to occur readily, causes a secondary toxemia, to say nothing of high temperature, entirely separate from the poisons and the disease of typhoid fever. Sugar has been shown to prevent, to some extent, the decomposition of protein[2] and lactose seems to be a good sugar for this purpose.

The diet of a typhoid patient should be mixed, containing carbohydrates in good amount, protein in small amount, and considerable sugar. The old milk diet does not fulfil these requirements. It has been now for several years thoroughly demonstrated that the typhoid patient should not be starved, as he does better on a liberal diet, unless there is some serious complication.

If the temperature is very high and the patient is decidedly toxic, the digestive fluids, especially of the stomach, are doubtless impaired; but in ordinary typhoid fever the digestion is probably not much impaired and intestinal absorption is good, and the appetite of the patient, though diminished from normal, will be sufficient, provided that he is not fed on one continuous food. It was the continuous milk diet that caused loss of appetite, heavily coated tongue, fermentation, flatulence and tympanites. Of course, if any particular article of food suggested is found to cause gastric or intestinal disturbance, this should be eliminated from the diet of this particular patient and some other nutritive substituted, but a diet properly varied with carbohydrate foods in the largest proportion (which foods protect the fat and even muscles of the body from waste), with a definite daily amount of protein, fat, sugar, salt and iron, if meat is not given, should prevent great emaciation of the typhoid patient. The aim, then, is to see that the patient receives every element of nutrition that he requires, that he has just sufficient protein to keep up a nitrogen equilibrium, and that he has enough starch to save his fat from destruction.

It has been asserted, and it is probably true, that if a large amount of fat is destroyed in the body, fatty acids of course occur, and later such toxic acids as diacetic and beta-oxybutyric and also acetone products, and this may produce the final toxemia that carries off the typhoid patient. In fact, this associated condition which we term acidemia probably occurs much more frequently in our seriously ill patients than we have supposed, and it is

---

1. Randolph, B. M.: New York Med. Jour., Sept. 6, 1913.

2. Kendall, A. I.: The Journal A. M. A., April 15, 1911, p. 1084.

especially likely to occur when patients are long deprived of carbohydrates. On the other hand, nothing from the preceding should be thought to indicate that a typhoid patient should be deprived of protein. He must have protein to keep his nitrogenous equilibrium and to build up his own antitoxins and blood-ability to fight his infection.

Suggestions for the actual diet of typhoid fever are: Proteins: milk, eggs, meat-juice, beef tea, mutton broth; carbohydrates: oatmeal or other cereal gruel, barley-water, toast, various crackers and sugar of milk. Malted milk and ice-cream are both valuable protein and carbohydrate foods. Other valuable nutritives for the typhoid patient are butter, cream, gelatin, oranges and lemons. Other necessities are sodium chlorid, iron and water. Coffee and alcohol often give valuable nutritive aid.

A pint is sufficient milk for an adult. More is likely to cause indigestion, and there is nothing, perhaps, more likely to promote intestinal indigestion, with the formation of indigestible curds, and, therefore, to produce the best possible decomposing menstruum for the growth of intestinal pathogenic germs. Hence milk should not be pushed.

The various methods of administering milk should be considered. It may be hot or cold, with or without salt, with or without Vichy, or with or without lime-water, as deemed best in the individual instance. Kumiss or other soured milk may be considered; in fact, it may be good treatment to give an artificially soured milk two or three times a day for the benefit it is supposed to cause in the intestinal canal in preventing fermentation.

Yeast makes an acceptable sour drink for a fever patient. It cleanses the tongue, acts as a laxative, and is generally well borne. At the same time it changes more or less of the intestinal flora. A simple way to administer it is to dissolve about one-sixth of an ordinary compressed yeast-cake in three-fourths of a glass of water. This amount may be given once, twice or three times a day, depending on its acceptability to the patient and the way it acts on the bowels.

Sometimes buttermilk is used. This, when used, should be given in larger quantities than ordinary milk, and does not contain many of the elements that are undesired in pure milk.

Of eggs, two a day, or the whites of three, are sufficient. The eggs may be given raw, in a small eggnog, with sherry, or well beaten up and on cracked ice and lemon-juice, or as a cup custard, or poached.

Of course, it should be emphasized that the height of the temperature and the condition of the stomach and the cerebral condition all modify the character and the amount of the food which should be administered; but the temperature being ordinary and the brain clear, and there being no nausea or vomiting, semisolid foods will be as well digested as more liquid foods. Ice-cream or malted milk may be substituted for any one or more feedings of milk.

A typical good meat-juice is made by taking a pound of chopped round steak, covering it with water, allowing it to stand for an hour, and then expressing out all of this water, blood and serum by the aid of a meat-squeezer This is then placed in an ice-box and administered, properly salted, in two portions. This furnishes the best possible nutrition from beef-juice. Beef teas are not so valuable, although they may be used. The same is true of mutton broth; to this rice may be added, if all is thoroughly cooked.

If it is deemed best not to give meat in any form, iron must be given to the typhoid patient, and the best method is the *Eisenzucker*, saccharated oxid of iron, and a 3-grain tablet once or twice a day, crushed with the teeth or given in powder, is sufficient for all of the iron needs of the body.

Thoroughly cooked, thin oatmeal gruel is perhaps the best carbohydrate that can be offered; it should be properly salted. Any other simple cereal that is well cooked and is better liked by the patient may be used in its place. At least one cup of such cereal should be taken daily, with the addition of some other cereal during the day, perhaps at least two other feedings. If the patient is able to chew (and this should be encouraged for cleanliness of the teeth and cleaning of the mouth and tongue), some dry toast or even buttered toast may be given, or one or other of the many fine crackers that are offered, such as oatmeal crackers or other forms.

While we are urging that plenty of water be drunk, either plain, carbonated or as Vichy, or as an orangeade or lemonade, perhaps the blandest water we can offer is barley-water. This offers a bland, watery drink with the addition of a small amount of carbohydrate. The flat taste may be removed either by a little salt or a little lemon-juice, as desired. Sometimes an occasional cup of pure, clean clam broth is very acceptable to the patient.

As suggested, the patient needs some form of fat, and a little cream on bread, crackers or gelatin, or butter, should be given him, if possible. Perhaps no method is better than a little buttered toasted bread.

It must not be forgotten that the patient must receive sodium chlorid with some of his foods. When the old milk diet of typhoid fever was carried out salt was forgotten. He cannot make his hydrochloric acid without sodium chlorid.

If we believe in the theory that gelatin tends to make the blood more coagulable and prevent oozing of blood from inflamed membranes (of course neither gelatin nor any other coagulant could possibly prevent bleeding from an eroded blood-vessel), lemon, orange, brandy or sherry jelly made from gelatin makes an acceptable dish to be offered once or twice a day to a typhoid patient, especially after the first week.

The patient should have some fruit salts; orange-juice or lemon-juice presents these salts in a very acceptable manner, and a little each day should be given.

A patient who is used to coffee should have it in the morning, perhaps best without milk, and generally with sugar. This stimulation might be repeated during the day if advisable, but it should be remembered that coffee is a cerebral stimulant and it should never be given later than the noon hour if it is desired that the patient sleep during the night.

There is no excuse for the administration of alcohol to a typhoid patient as a stimulant, which it is not. On the other hand, if a patient is so ill that he can take but a very small amount of nourishment, alcohol will aid in giving him some nutrition. The best form is probably good whisky, and the outside limit should be not more than a teaspoonful once in three hours. It is a food and will protect some of the fat of the body, and may prevent in this manner toxic acidemias. A patient who was an alcoholic before his attack of typhoid fever might need more than this dosage.

The patient should be fed about every three hours during the daytime, the changes being varied from one nutriment to another throughout the day so that he does not become sickened of any one of them. During the night the intervals should be four or even five hours, if the patient is not very sick.

(*To be continued*)

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, OCTOBER 18, 1913

DIET, DUCTLESS GLANDS AND TUMORS

In commenting on the relation of nutrition to the growth of transmissible tumors[1] we referred in some detail to the recent investigations of Sweet, Corson-White and Saxon[2] in Philadelphia. They concluded from their experiments that: (1) the susceptibility of rats and mice to the transplantable tumors may be influenced both positively and negatively by proper diets; (2) the rate of growth of the transplanted tumors can similarly be influenced; (3) castration of the male renders the animal more receptive to the transplant, and the rate of growth of the tumor is increased.

Several years ago Hunt[3] described the influence of certain drugs and diets on the activity of the thyroid glands. Some of the substances were believed to stimulate, others to repress the gland functions. Reasoning that the influence of diet may be exerted through the ductless glands, the Philadelphia investigators attempted tumor transplantations in animals kept on the special diets intended to affect the thyroid. Here, too, as with the Mendel-Osborne diets, the development of the tumors was decidedly modified. Furthermore, the ductless glands were taken into consideration even more directly by transplanting tumors into animals deprived of certain possibilities in the nature of internal secretion by castration. Here it appeared that the removal of the testes in some way renders the animal a more receptive host, as seen by the increased "takes" of the tumors and their more rapid growth.

As a tentative hypothesis to correlate all of these conclusions, which seem justified by their experimental evidence, Sweet, Corson-White and Saxon suggest that perhaps special diets exert their specific influence on tumor growth through the intermediation of the ductless glands. Some of their comments in connection with the field opened by their studies are worth recalling here, since these reflect facts of clinical experience. We are reminded, for instance, of the relation of the thyroid to growth, as seen in cretinism; of the relation of the pituitary to acromegaly and gigantism and of the control of the pituitary over the only pronounced instance of embryonic cell production which persists in adult life, spermatogenesis and oogenesis. Finally, it is a clinical fact that cancer, notwithstanding many exceptions, is a disease of the menopause, that period of life when certain of the ductless glands lose their normal function, this loss entailing related changes in the whole chain of interrelated functions of the ductless glands.

It is dangerous and unprofitable to venture at present on the debated ground of the parasitic nature of cancer. If it shall appear further that the development of a neoplasm is directly influenced by conditions which modify normal growth, it will be difficult then to assume —so we are reminded by Sweet and his colleagues—that a parasitic process would obey the laws of normal growth.

---

[1] The Relation of Nutrition to Transmissible Tumors, editorial, The Journal A. M. A., Oct. 11, 1913, p. 1378.

[2] Sweet, J. E.; Corson-White, Ellen P., and Saxon, G. J.: The Relation of Diets and of Castration to the Transmissible Tumors of Rats and Mice, Jour. Biol. Chem., 1913, xv, 181.

[3] Hunt, R.: Bull. 69, Hyg. Lab., U. S. P. H. S., 1910.

THE WATER-SUPPLY OF RURAL COMMUNITIES

The emphasis of responsibility for the occurrence of water-borne diseases is so often put on the water-supplies of our larger communities that by way of contrast the conditions in American rural districts are usually thought of, if not actually pictured in the public mind, as almost ideal. Naturally enough, farms which are generally remote from villages and cities or other areas of congested population seem to be ideally situated for obtaining wholesome water. In reality, however, deplorably insanitary conditions as regards the farm water-supplies prevail widely, if we may believe the authorized reports that have accumulated within two or three years from various state and national government sources.

A large proportion of farm water-supply in the less hilly portions of the country where springs are not abundant comes from shallow wells, which are particularly subject to contamination. Deep wells are safer, but are not entirely free from danger of pollution. The chemist of the Canada Experimental Farms, Dr. Frank T. Shutt,[1] concludes from an examination of several thousand samples of water used on farm homesteads in Canada that "probably not more than one-third of them are pure and wholesome." According to the office of Experiment Stations,[2] investigations made by K. F. Kellerman and H. A. Whittaker of the Bureau of Plant Industry, in cooperation with the Minnesota State Board of Health, showed that of seventy-nine carefully selected and typical farm water-supplies in Minnesota, mainly well-waters, twenty were good and fifty-nine were polluted, usually because of careless or ignorant management, and generally as a result of poor location or lack of protection against surface wash or infiltration. The rivers, surface reservoirs and cisterns investigated were found to be polluted to such an extent that it is considered doubtful whether satisfactory supplies can be secured for household use from such sources. In an examination of the rural water-supplies in Indiana it has been found that "of the private rural water-supplies examined, 177 were deep wells, 411 shallow wells, five ponds, forty springs, and twenty-seven cisterns. One hundred and sixteen of the deep-well waters were of a good quality, forty-five were bad and sixteen doubtful. But 159 of the 411 shallow-well waters were potable, 209 were unequivocably bad, and forty-three were of doubtful quality." A large percentage of the waters used by the families in which typhoid fever had occurred was unequivocably bad.

---

[1] Shutt, Frank T.: Canada Exper. Farms Repts., 1911, p. 201; 1912, p. 167.

[2] Kellerman, K. F., and Whittaker, H. A.: Exper. Sta. Work, 1913, xxvi, 5.

With the development of the country, the growth of the population and the greater congestion in living centers, the danger of pollution of natural water-supplies is vastly increased. Even wells can be improved and rendered less subject to pollution if proper methods of driving them deeper are employed. The best safeguard is the inculcation of the underlying facts of contamination so that by the application of common sense the sources of danger can be avoided by property-holders and others.

ABDERHALDEN'S TEST IN CANCER

The great need for a ready means of diagnosis of cancer, especially in its earliest stages, has led to the trial of various so-called serum tests, but so far not one of the various methods that has been proposed for this purpose has been found worthy of general confidence. Everything is still in the experimental stage. The latest proposal in this direction is Abderhalden's test, concerning the use of which in other conditions much is being written nowadays. This test is based on the consideration that when foreign proteins get into the blood, the body reacts by elaborating a ferment which causes their disintegration. The same reaction is believed to occur under the influence of certain peculiar protein substances derived from the organism itself. As elements from the placenta pass into the maternal blood, the serum acquires the power to digest placental tissue. This power is believed to be present only in pregnancy, and Abderhalden's test for pregnancy is based on this principle.

May it not be possible that in cancer analogous reactions occur so that the serum of cancerous patients may be able to digest cancerous tissue? If this should be the case, the detection of the products of such digestion would be a means of specific diagnosis. The method is simply this: A small piece of cancerous tissue is placed in a dialyzing-sack and covered with a few cubic centimeters of the serum of the suspected cancer patient; this sack is put in a 2 per cent. solution of sodium fluorid in a suitable container and the whole placed at 22 C. (71.6 F.) for thirty-six hours. At the end of this time the fluid outside of the dialyzer is tested for products of protein digestion. The presence of peptones signifies a positive result—the patient has cancer. It is absolutely necessary for perfect sterility to be maintained throughout, as contamination spoils the result.

Among many others working in this line, Erpicum[1] tested the serum of forty-two patients with tumors in various parts, the exact nature of which was determined later after operation. Of these tumors all the cancers (two sarcomas) gave positive results. The benign tumors gave negative results. This outcome certainly is impressive, almost too good to be true, but if confirmed by more extended observations a great advance will have been made in the struggle against cancer.

THE TRANSPORT OF PARTICLES FROM TISSUE SPACES

The question of whether and, if so, how undissolved particles can traverse the walls of the blood-vessels and lymph-vessels has vexed physiologists for more than a generation. So long as it was assumed that the lymph-vessels take their origin in the tissue spaces or the unbounded interstices of the connective tissues, the possibility of a channel of exit for minute suspended particles as well as for solutions was always left open. But when the histologist began to demonstrate that the tissue spaces are in truth closed regions limited by a special endothelial wall, the sole refuge for the escape of solid particles seemed to lie in the alleged stomata or peculiar perforating openings which were assumed to afford a convenient outlet, even to formed elements. The day of the stomata from which so much was expected has come and gone, while the problem of the removal of undissolved substances from the subcutaneous and other lymph-spaces remains.

It seems to be demonstrated by convincing researches, particularly those of Mills and Murlin,[2] that fat, a substance insoluble in either the lymph or the blood, can actually find its way from subcutaneous tissue spaces, into which it may be introduced by hypodermic injection, to the blood-stream. Several possibilities suggest themselves in explanation of the transportation of fat. The substance may be converted into soluble compounds through the agency of lipolytic enzymes in the tissue spaces or fluids, that is, digested *in situ*. It may become thoroughly emulsified and travel engulfed by leukocyte-like cells which wander from one spot to another in the organism. Or finally, the minute fat particles in suspension may even be conceived to penetrate as such the vessel-walls when the insoluble substances introduced are in a state of extremely small subdivision.

Obviously the possibilities open to indigestible insoluble particles such as colloidal suspensions of metals, pigments, lipoids, etc., are even less favorable than in the case of fats, in which at least some digestive transformation is always conceivable. Investigations of Dr. Alfred Neumann[3] in Vienna with suspensions of diverse substances such as colloidal silver, casein, sudan, oleic acid, butter, lecithin and lanolin, have failed to demonstrate any transference of these corpuscular particles from the meshwork of the subcutaneous tissues, into which they were cautiously introduced, to the lymph-stream or blood-current. Since this is a substantiation of what others have found by the aid of less refined technic, one can only conclude that the subcutaneous tissue acts as a sort of filter mesh which permits solutions but not suspended matters to penetrate it. In view of these observations one is in turn forced to the conclusion that in the case of the fats, which are actually known to enter the circulation from the seat of their injection, there must either be a conversion into some subtle modification or an active participation of transporting phagocytic cells in carrying the foreign product from the site of its introduction to distant places in the body.

---

[1] Erpicum: Contribution à l'étude du séro-diagnostic du cancer, Bull. de l'Acad. roy. de Belg., 1913, xxvii, 624.

[2] Mills, Lloyd H., and Murlin, John R.: Proc. Soc. Exper. Biol. and Med., 1910, vii, 166, referred to by Mills, Lloyd H.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med., May, 1911, p. 694.

[3] Neumann, Alfred: Können ungelöste Substanzen von aussen in die Blut- oder Lymphkapillaren gelangen? Zentralbl. f. Physiol., 1913, xxvii, 214.

NAUSEA

Although pain has always attracted due consideration in the domain of medicine, there are other sensations which have scarcely received the attention which a careful analysis may show that they merit. It has happened, therefore, that such subjective symptoms as hunger and appetite, satiety and nausea, rarely play any practical part in the management of the cases that come to the notice of the physician for treatment. This is largely accounted for by the fact that the phenomena of these more obscure sensations are not amenable to the same sort of interpretation or control as are the numerous other symptoms which have more objective manifestations. Usually they have been relegated to the care of the psychologist with little thought of further practical use.

The genesis of hunger has already been discussed in these columns.[1] The possibilities of the appetite as a factor in nutritive welfare, and the significance of conserving or awakening this sensation as an aid to dietotherapeutic measures, are beginning to receive some recognition, though not what their importance merits. If it is true that the intelligent and effective management of appetite has been neglected in the past, certainly the meaning of the sensation of nausea has hitherto been completely disregarded. Sternberg[2] has pointed out that it is a mistake to identify or confuse nausea with lack of appetite. He maintains that the cause of the undeniable demand for variety instead of monotony in diet is closely bound up with the physiology of nausea. Indeed, it is a rather remarkable phenomenon, when one stops to consider it, that the transition from appetite to indifference, from eagerness for food to complete anorexia, takes place at times with so little apparent reason for it. Let a slight surfeit of even some palatable food be ingested, and relish may promptly become converted into nausea.

The "failure" of the appetite has been attributed by some to a fatigue of the sense of taste. Yet this cannot well account for the positive manifestation of nausea which may follow it; for if lack of appetite be explained in ultimate analysis by the idea of lack or failure of taste, it must at most be merely a state of indifference. Nausea, however, is an active something, not a mere negative phase of appetite or satiety. The demand for a change of diet may be the response to incipient nausea; and Sternberg would have it that this sensation is centered in a vomiting or antideglutition reflex which may succeed the usual events of deglutition just as antiperistalsis follows the normal peristaltic sequences in lower portions of the alimentary tract. Nausea is the premonitory symptom of the act of vomiting. Attempts to thwart the sensation of nausea must be directed to its physiologic basis, the vomiting mechanism; and what will affect the other sensations already discussed need by no means have any influence on the one here under consideration.

The clinician will find appropriate occasion at times not merely to overcome the feeling of nausea, but even to awaken it. The timely development of this sensation is one of the means at his disposal in the treatment of obesity.[3] It is not difficult to destroy a patient's appetite. The success of the reduction treatments—not "cures" as they are so often erroneously translated from the German—for obesity at various resorts, such as Marienbad, is in part attributable to the fact that they obliterate the appetite. But therapeutically this anorexia can even be carried to the extreme of incipient nausea. Such *Ekelkuren* are said to have been popular on the European Continent at one time, though they are scarcely heard of to-day. It is only necessary to administer minimal doses of emetics to accomplish what is aimed at by nausea in reducing the desire for food, with a consequent loss of body-weight. Indeed, in some persons an inordinate intake of tasteless fats as prescribed by some physicians in anti-obesity treatment amounts ultimately to the "nausea treatment." Other possibilities associated with the hitherto ill-defined sensations which we have referred to are likely to come to light and find useful applications when once the phenomena are given more rational consideration and scientific analysis.

Current Comment

A FOOD CLINIC

At the Congress on School Hygiene, held in Buffalo in August, Dr. Walter M. Roach, district supervisor of school medical inspectors in Philadelphia, reported the results obtained among schoolchildren of ages from 6 to 14 years after the establishment of a food clinic in certain schools in his district. Many of the children were found to be coming to school with insufficient or no breakfasts. The children were fed for a period of four weeks in the spring of 1913 at the morning recess period with some form of cereal and milk, the form of cereal being changed daily. In all, 113 children were fed in this manner. In a group of fifty, who were carefully weighed, measured and physically examined before the beginning of the feeding and afterward, it was found that there was an aggregate gain of over 252 pounds. But, as stated in the report, the increase in weight from a given amount of food in the time mentioned was not the chief advantage gained. Some of the children gained little or nothing in weight, but it was found that they all improved in color, increased in hemoglobin percentage, gained in spirits and activity, and were less nervous and irritable. They were able to study better and their work progressively increased in effectiveness, which was demonstrated by their grades. The average grades for the whole school, 350 pupils, including the 113 who were given the feedings, increased in spelling from 76.4 to 82.3, and in arithmetic from 69 to 72. For the same period the averages of the pupils of the second grade attending the clinics increased from 71 to 87 in spelling, and from 59.6 to 71.3 in arithmetic. In the third and fourth grades, as also in the special classes for retarded pupils, the improvements were equally notable. Aside from the demonstration in figures of the effect of adequate nourishment on the work of the pupils, another interesting deduction is made in the report. The per capita cost of education in the public schools in Philadelphia exclusive of permanent improvements is $36.59 per child per year. If the child fails to make its grades, it is a fair deduction that the $36.59 has been an economic loss, and whatever may be thought of the proposition of the school authorities going into the business of feeding the children in the schools, the author of the report feels that if an expenditure for food of $10 per pupil for two hundred school days would make the $36.59 productive, it could be considered as an economic gain; the outcome, he feels, "removes the problem from the sphere of paternalism."

---

[1] What is Hunger? Editorial, The Journal A. M. A., April 6, 1912, p. 1018.

[2] Sternberg, W.: Die Physiologie der Gefühle; Das Ekelgefühl, Zentralbl. f. Physiol., 1913, xxv, 87.

[3] Sternberg, W.: Eine neue Entfettungskur mittels diätetischer Küche, Fortschr. d. Med., 1911, Nos. 51, 52.

THE STATE BOARD QUARTERLY

The first copy of the new *Quarterly*,[1] the official organ of the Federation of State Medical Boards of the United States, has just been received. It is published by the federation, the secretary being also the editor, and it is announced that "the *Quarterly* shall be the forum for the presentation and discussion of ideas on medical education by any one interested." The several articles from well-known writers on medical education and medical licensure are printed in large, clear type; there are numerous interesting excerpts from important articles on medical education, and the news notes show care in selection. This number also contains a list of members, reports of meetings and the constitution and by-laws of the federation. We bid the *Quarterly* welcome to the ranks of medical periodicals, and wish for it a most influential existence. Its greatest influence, however, will depend on whether or not it recognizes its chief function as an instrument for the exchange of information which state board members need. Much is already being published regarding medical education—all medical journals are naturally interested in that. But regarding the problems of medical licensure in this country, this publication has a particular and a most important field in which it can be a power for good. To point out the needs in medical licensure, to suggest remedies, to bring about a closer cooperation between state licensing boards and to secure a more equally effective administration of all medical practice acts—this is clearly the chief field of the new State Board *Quarterly.*

THE FOOD FACTOR IN SOME SOCIOLOGIC PROBLEMS

In connection with a consideration of the opportunities, or lack of opportunity, for adequate nutrition which prevail among the poorer classes in large cities,[1] it became apparent that there are in such communities not a few families which actually suffer from a lack of sufficient food. The main items of expenditure among the laboring classes are for food and rent. These are, of course, absolutely essential. It is interesting to note, therefore, from the statistics that have lately become available, how the percentage of income expended on rent and food increases as the income decreases. These stubborn facts enable us to realize the keenness of the struggle to make ends meet in poorer homes, even with a regular income, when it is very small. When over 90 per cent. of the wages earned is thus disbursed, the opportunity to obtain other necessities—not to mention non-essentials—is so limited that frequently recourse is had to a reduction in the food bill, which is already as low as is consistent with the maintenance of health. Here is a condition which perhaps permits the inroad of disease among the poor quite as readily as other unhygienic living conditions, particularly those pertaining to housing and environment. When there is even a moderate expenditure for alcohol the situation is even worse. Perhaps our sociologists have not sufficiently appreciated in the past that the occurrence of conditions in which the support of the family and the provision of even the barest necessities prevent the attainment of any variety and interest in life and almost enforce a monotonous existence reacts in a variety of ways on the health and efficiency of the community through the diet factors referred to. The essays at amelioration and reform must accordingly take into account possible changes in the mode of feeding which might set free a greater proportion of the income for other things than food. Dietary habits need to be dealt with in this field quite as much as ignorance and the "stultifying influence of the surroundings."

THE CONVENIENT AMERICAN MILLIONAIRE AND THE ADVERTISING QUACK

There seems to be no limit to the ingenuity of the quack and the semiquack in devising methods of advertising themselves. A new turn has been given to the game by a French physician, as recorded in the *Journal de médecine de Bordeaux*, the details of which are as follows: In the daily newspapers of Bordeaux an advertisement appeared to the effect that an American millionaire coming to Bordeaux desired to hear of a physician who could cure his tuberculous daughter and syphilitic son, for which information he would pay 100,000 francs. This, as may be supposed, created much interest in the neighborhood. The reputation of American millionaires for freely shedding their coin no doubt created visions of a golden shower much in excess of the paltry 100,000 *francs*. The secret and solution of the whole matter, however, were revealed a week later in a second advertisement of the supposed American millionaire in which he heartily thanked his numerous correspondents for naming the physician who could cure his tuberculous daughter and syphilitic son. It was none other than Dr. T—— of Bordeaux whom "almost all the letters received had recommended," and thereby the stock and credit of Dr. T—— in that community no doubt went floating skyward. The medical journal, in commenting on the clever advertising dodge of Dr. T——, commends his modesty in saying that "almost all the letters" recommended him, instead of claiming that he was the only one named. The cure by Dr. T—— of the mythical American millionaire's son and daughter of course has no relation to the point of this story.

---

[1] The Federation Press, Easton, Pa., $2 per year.

[1] The Nutrition of the Poor, editorial, THE JOURNAL A. M. A., Sept. 27, 1913, p. 1046.

EXUBERANT VERBOSITY

The medical profession is perennially accused of lack of clarity of expression in dealing with medical subjects. In the accusation there is a certain amount of justice, but the critics forget that many scientific subjects, especially those of a technical nature, cannot easily be dealt with in the language of the street. Nevertheless, the charge that we are not clear and direct in our method of expression makes us sad. That is, until we happen to get hold of a piece of *composition written* in legal phraseology. Then by comparison the most turbid of medical expressions become clear. These facts are suggested by reading a charge made by a grand jury against a physician who had rendered a bill against the county for more than was due him. Briefly, the doctor had claimed to vaccinate twenty-seven more persons than he actually had vaccinated, and thus obtained from the county twenty-seven dollars which did not belong to him. The misdemeanor was not an involved one but the grand jury stated it thus:

> John Doe, on the fourth day of March, in the year of our Lord one thousand nine hundred and twelve, in the county aforesaid, with force and arms did unlawfully, by using deceitful means, artful practices, defraud and cheat the County of ——— in the State of ——— out of the sum of $27. . . .

And as though this charge were not sufficiently overwhelming, the grand jury goes into details regarding this misdemeanor thus:

> The said John Doe then and there represented to said
> Board of Commissioners that he vaccinated the above-named
> persons and the said board then and there paid the said John
> Doe one dollar each for the above-named persons, and said
> payment was made upon said representation and said repre-
> sentation so made by the said Doe that he vaccinated
> the above-named persons was false, and made by the said
> Doe for the purpose of cheating and defrauding the said
> County of ——— and said Board of Commissioners of Roads
> and Revenues of said county, out of the sum of twenty-seven
> dollars, and because of said false representation said County
> of ——— was cheated and defrauded by the said John Doe
> out of said sum of money, contrary to the laws of said state,
> good order, peace and dignity thereof.

A noted English statesman, long since dead, once accused his political opponent on the floor of the House of Commons of being "intoxicated with the exuberance of his own verbosity." A study of legal phraseology leads the layman to wonder if this is not a species of intoxication indulged in by those who are submerged in an otherwise dry subject. If so, a new field of investigation may be opened up. A study of the pathology of the verbal "jag" might throw some light on this obscure subject.

THE BAD TASTE IN HYPOCHLORITE-TREATED WATER-SUPPLIES

It is surprising, as pointed out by Lederer,[1] that so little attention has been paid to the question of removing the taste from water-supplies treated with chlorinated lime. In this country especially, where the treatment of many large public supplies has been carried out with brilliant sanitary success, there has been frequent and often bitter complaint about the taste of the treated water. As well known, antagonism has developed in many places between water boards and health departments as a result of these conditions. On one side is the recognition that the danger from water-borne diseases is greatly reduced by the hypochlorite treatment: on the other is the necessity of having to bear the burden of daily complaint and to meet the indignant protests of thousands of aggrieved water-drinkers. As pointed out by Lederer, a simple method is available for removing the taste from hypochlorite-treated water. After careful experimenting he has confirmed the advantage of sodium thiosulphate ($Na_2S_2O_3,5H_2O$) as recommended by Bruns. The reaction on the residual chlorin is as follows: $Na_2S_2O_3 + 8Cl + 5H_2O = Na_2SO_4 + H_2SO_4 + 8HCl$. The acids formed in the neutralization process immediately combine with bases to form neutral salts. Lederer has obtained good results in the elimination of taste in Lake Michigan water treated in this way. Sodium thiosulphate seems to possess marked advantages over sodium sulphite. It must be remembered that the action of the thiosulphate stops the germicidal action of the chlorin so that it is necessary to allow the chlorin to act for a sufficient length of time (Lederer recommends from at least ten to fifteen minutes) before the thiosulphate is added. An interesting point brought out in the discussion of Lederer's paper is that hypochlorite seems under some conditions to accentuate an *unpleasant taste* originally present in the water. In Toledo, for instance, it is stated that the water develops a disagreeable taste when the river first freezes over, owing to the presence of large amounts of vegetable matter in the water. The bad taste is said to be increased by even *small amounts* of hypochlorite.

THE INFLUENCE OF THE BRAIN ON METABOLISM

We have, before this, discussed the question as to the expenditure of energy incidental to nervous work.[2] The nervous system forms, in quantity, so small a part of the total metabolically active tissues of the entire body that it is most difficult to detect small increments of energy transformation that might be due to nervous "work." Isolation experiments such as were referred to in a recent issue of The Journal[2] are difficult of performance with the sensitive nervous system. Even if, as seems to be the case, there is little evidence for any considerable direct utilization of energy in the performances of the nervous centers, this does not preclude the possibility of a very appreciable indirect influence on metabolism. That such can actually be realized is indicated by recent experiments in Tangl's laboratory in Budapest,[3] though the results are quite contrary to what one might expect at first thought. We are so accustomed to associate the nervous system with the initiation of impulses—with the awakening to activity and a physiologic goading to work—that it comes as a surprise to read of the reverse. Yet Hannemann has found that after the total extirpation of the brain there is a marked increase in the respiratory exchange and the heat production parallel thereto. This is apparently not due, as might be suspected, to the operative interference or to infectious processes ensuing, but is the outcome of a removal of inhibitory influences ordinarily exerted by the higher nervous centers. Extirpation of smaller areas may lead to similar results. The fact that these observations were made on lower animals does not detract from their general interest. They serve, if nothing more, to make us realize better the potent part which inhibition plays in physiologic manifestations. The central nervous system serves quite as useful a function in repressing and restraining the inherent tendency of a reflex organization to undue and continued activity as it does in keeping the machinery of the body in well-regulated operation.

---

[1] Lederer: Proc. Ill. Water Supply Assn., 1913, p. 235.

[2] The Nervous System and Metabolism, editorial, The Journal A. M. A., Nov. 30, 1912, p. 1974.

Medical News

ILLINOIS

New Officers.—Fulton County Medical Society at Canton, October 7: president, Dr. Isaac L. Beatty, Fairview; secretary-treasurer, Dr. David S. Ray, Cuba.

Personal.—Dr. C. T. Roome has been appointed health commissioner of Evanston, succeeding Dr. Victor Balderston, resigned.——Dr. and Mrs. T. W. Curry, Streator, have returned from Europe.

Tag Day for Silver Cross.—Silver Cross Hospital, Joliet, has become too small for the needs of the city and an addition is proposed to cost $55.000. To accomplish this a tag day was held in Joliet October 11. The addition to the hospital will double its capacity.

Officers for State Anti-Tuberculosis Association.—At the annual meeting of the Illinois Association for the Prevention of Tuberculosis, held in Rockford, October 13, the following officers were elected: president, Dr. W. A. Evans, Chicago; vice-presidents, Dr. Tully O. Hardesty, Jacksonville, and Mrs. J. J. Robins, Chicago: secretary, James Minnick, and treasurer, David R. Forgan, Chicago.

Sanatorium Notes.—The ten-day campaign in Aurora, to raise $100.000 for St. Joseph's Sanatorium, was successful and work on the new buildings will be started in the early spring.——Dr. J. H. Steely, Freeport, has purchased the property of the National Sanatorium and Springs for $25,500.——Dr. Elbert W. Oliver, Peoria, has acquired 120 acres on the Tazewell County side of the Illinois River, and announces that he will build a sanatorium next spring, to cost $100,000.

Chicago

Personal.—Dr. E. H. Ochsner has been appointed a member of the state charities committee, succeeding Dr. Frank Billings. Dr. Anna Dwyer has also been appointed a member of the committee.

Commends McCormick.—The Chicago Surgical Society, at its meeting October 3, adopted a resolution commending Mr. A. H. McCormick, president of the Board of Commissioners of Cook County, for the work which has been done in Cook County Hospital toward putting the institution on a scientific basis.

Specialists Form Alumni Association.—The alumni of the Illinois Charitable Eye and Ear Infirmary, which since its establishment in 1858 has graduated less than seventy-five persons, have formed an association with the object of holding an annual meeting in the effort to differentiate them from many who make claim to be alumni of the infirmary, after having made only clinical visitations. An emblem has been selected, to be presented to each alumnus who completes his services in the institution.

INDIANA

Personal.—Dr. George W. Buckner, Evansville, has been appointed Minister to Liberia, and has started for his post of duty.——Dr. Fred A. Dennis, Crawfordsville, has been elected president of the Montgomery County Anti-Tuberculosis Society.——Drs. John F. Barnhill, John H. Oliver and David Ross, Indianapolis, have returned from Europe.

State Board to Be Transferred to University.—Governor Ralston has recommended to the State Board of Buildings and Properties that the State Board of Health, with all its laboratories, be transferred to the Indiana University School of Medicine buildings, west of the State House, provided the transfer can be made without too great expense.

County Tuberculosis Colonies.—The Richmond Commercial Club is cooperating with the members of the Wayne County Medical Society and the Wayne County Anti-Tuberculosis Society, for the establishment of a tuberculosis colony. The plan to establish a tuberculosis colony on the grounds of the Reid Memorial Hospital has been abandoned because the site is on or near marshy ground.——It is planned to establish a county tuberculosis sanatorium for Laporte County near LaPorte.

Physicians Win Suits.—Dr. Grant C. Markle, Winchester, secretary of the Randolph County Board of Health, has been awarded damages of $7,600 for injuries received when struck by a train on the Big Four Railroad in January last.——Dr. Arthur G. Tullar, New Carlisle, who sued the town for his services in the treatment of contagious diseases, has been awarded a verdict of $363.22. The court held that while Dr. Tullar was under contract to treat the sick of the town, this contract did not include contagious diseases.

State Association Meeting.—At the annual meeting of the Indiana State Medical Association, held in West Baden, September 24-26, the following officers were elected: president, Dr. James P. Salb, Jasper; vice-presidents, Drs. Charles E. Stone, Shoals; Porter H. Linthicum, Evansville, and Charles L. Botkin, Farmland; secretary, Dr. Charles N. Combs, Terre Haute; treasurer, Dr. David W. Stevenson, Richmond, and delegates to the American Medical Association—Drs. Edwin Walker, Evansville, and J. Rilus Eastman, Indianapolis. Lafayette was selected as the next place of meeting.

MARYLAND

Baltimore

Dr. Keirle Honored.—Dr. Nathaniel G. Keirle, city postmortem physician and chief of the Pasteur Institute at the College of Physicians and Surgeons, was tendered a banquet on Saturday evening, October 11. Arrangements for the banquet were made by Dr. Harry Friedenwald.

Appeal for Funds.—An appeal for funds has been made by the Board of Managers of the Home for Widows and Orphans of Physicians, of which the late Dr. Eugene F. Cordell was president. As this is the first home established in this country for such purpose, the managers are especially anxious to have it continue.

---

[2] The Energy Transformations in Individual Organs, editorial, The Journal A. M. A., Oct. 11, 1913, p. 1381.

[3] Hannemann, K.: Zur Kenntnis des Einflusses des Grosshirns auf den Stoff- und Energieumsatz, Biochem. Ztschr., 1913, liii, 80.

MASSACHUSETTS

Ether Day.—The sixty-seventh anniversary of Ether Day was celebrated in the lower amphitheater of the outpatients' department of the Massachusetts General Hospital, October 16. The principal address was delivered by Dr. Milton J. Rosenau.

Warren Prize Awarded.—The Warren triennial prize for 1913, amounting to $500, has been awarded to Dr. Prof. Arrigo Visentini, instructor in pathologic anatomy in the Royal University, Pavia, Italy, for his essay entitled, "Function of the Pancreas and its Relation to the Pathogenesis of Diabetes."

Refused to Build Hospital.—The special committee on tuberculosis of the House of Representatives has called on the mayors and city governments of Medford and Attleboro to appear before it and explain why they have not complied with the law requiring cities and towns to establish and maintain tuberculosis hospitals and dispensaries.

Wesson Hospital Thrown Open.—Wesson Memorial Hospital, Springfield, by decision of the board of trustees, will be open for patients of any physician of the city after October 1, instead of being confined to patients of the members of the hospital medical staff. The institution has accommodation for seventy patients, but is only about half full at present.

Personal.—Dr. Theodore H. Aschman, Boston, has been appointed head of the anatomy department in the Harvard Medical School, Shanghai, and sailed from San Francisco for his new post of duty September 30.——Dr. Patrick F. Gahan has been appointed a trustee of the Medford Public Library.——Dr. Elliott Washburn, Taunton, has succeeded Dr. P. Challis Bartlett, resigned, as superintendent of the State Sanatorium for Tuberculosis, Rutland.——Dr. Victor V. Anderson, assistant instructor in psychology in Harvard University, has been appointed assistant probation officer of the municipal criminal court, Boston.——Dr. Charles A. Deland, Warren, has been appointed medical examiner of the ninth Worcester district, vice Dr. Ephraim W. Norwood, deceased, and Dr. James C. Austin, Spencer, has been appointed associate examiner.——Dr. P. Challis Bartlett, retiring superintendent of the State Sanatorium, Rutland, was given a farewell banquet at the Hotel Bartlett by the members of the staff of the institution September 17. Dr. Bartlett expects to enter private practice in Boston.——Drs. Edward and Simon J. Russell, Springfield, have returned from Europe.——Dr. Robert W. Hastings has been elected chief medical inspector of the public schools of Brookline, succeeding Dr. Lincoln Chase, resigned.

MISSOURI

Hospital for Negroes.—The negroes of Kansas City have undertaken the establishment of a hospital for the treatment of members of their own race, to cost about $30,000. The hospital is to be named "The Phyllis Wheatley Hospital."

Personal.—Dr. Thomas O. Klingner, Springfield, has been appointed councilor for the Twenty-Eighth District, succeeding the late Dr. A. H. Madry, Aurora.——The Board of Trustees of the Federal Surgeons' Home, St. James, has reappointed Dr. Charles H. Fulbright, surgeon of the home.——Dr. William J. Calvert, Columbia, has resigned as professor of preventive medicine in the University of Missouri, to accept the appointment of professor of practice of medicine in the Medical Department of Baylor University, Dallas, Texas.——Dr. Guy L. Noyes has been appointed acting dean of the School of Medicine of the University of Missouri, Columbia.——Drs. Hasbrouck De Lamater and George P. Pipkin have been placed in charge of the Kansas City Isolation Hospital.——Dr. Arthur M. Gregg, City Physician of Joplin, has gone to Kansas City to take the Pasteur treatment.——Dr. John M. Dunsmore, St. Joseph, was obliged to have his left eye enucleated, September 18, as a result of the explosion of a bottle.——Dr. Robert B. Middlebrook, Jr., night superintendent of the Kansas City General Hospital, has resigned.——Dr. F. G. Beard, St. Joseph, has been appointed assistant police surgeon, succeeding Dr. W. H. Litter, appointed assistant city physician.

St. Louis

Progress of the Sanatorium Fund.—The Board of Directors of the Missouri Baptist Sanitarium, say that $152,000 is already on hand for the building fund for the addition to the institution.

Hospital for Carondelet.—Work has been started on the Matilda Hospital, Carondelet. The building is to cost $20,000, and is intended to care for cases now sent to institutions at a distance from this suburb.

Personal.—Dr. Wayne Smith, for two years superintendent of the St. Louis City Hospital, has resigned to become general manager of the Harper Hospital, Detroit, Mich.——Dr. Frederick W. Veninga has been elected surgeon-general of the United Spanish-War Veterans.——Dr. Bradford Lewis has been elected an honorary member of the Kentucky State Medical Association.

New Faculty Members.—The St. Louis University School of Medicine announces the following faculty appointments: Dr. A. G. Pohlman, formerly professor of anatomy in the University of Indiana, professor of, and director in, the department of anatomy; Dr. Don R. Joseph, formerly associate professor of physiology in Bryn Mawr (Pa.) college, professor of, and director in, the department of physiology; Dr. Albert Kuntz, formerly director in the University of Iowa, Iowa City, assistant professor in experimental biology; and Dr. Hanau W. Loeb, dean of the medical school.

NEW MEXICO

New Board of Health.—The mayor of Albuquerque has appointed the following as a city board of health: Drs. J. A. Reidy, L. G. Rice and Harry B. Kauffmann, and Mrs. David Rosenwald.

Albuquerque Physicians Indicted.—Twenty-five physicians of Albuquerque were recently indicted by the Bernalillo County Grand Jury, charged with violating the statute which requires the filing of death certificates with the county clerk.

New Officers of State Society.—At the annual meeting of the New Mexico Medical Society, held in Albuquerque, October 3 and 4, the following officers were elected: president, Dr. H. B. Kauffmann, Albuquerque; vice-presidents, Drs. W. T. Joyner, Roswell, Evelyn Frisbie, Albuquerque, and William Howe, East Las Vegas; treasurer, Dr. F. E. Lull, Albuquerque; councilor, Dr. LeRoy Peters, Silver City; delegate to the American Medical Association, Dr. W. R. Tipton, East Las Vegas, and alternate, Dr. S. S. Swope, Deming. It was decided to hold the next meeting at Albuquerque.

NEW YORK

Work of Health Council.—The State Public Health Council met for organization in Albany, September 30, and the work laid out for it includes the drafting of a state-wide sanitary code and the formulation of qualifications for the candidates for the many new positions created by the organization act.

New Officers.—Medical Society of the State of New York, First District Branch, at Yonkers, October 9: president, Dr. Henry Lyle Winter, Cornwall; secretary, Dr. Charles E. Denison, New York City.——Ontario County Medical Society, 107th annual meeting at Canandaigua, October 7: president, Dr. Homer J. Knickerbocker, Geneva; secretary-treasurer, Dr. Daniel A. Eiseline, Shortsville (reelected for the seventeenth time).——Medical Society of the State of New York, Fifth District Branch at Oneida, October 2: president, Dr. Frederic H. Flaherty, Syracuse; secretary, Dr. J. F. McGaw, Watertown. Syracuse was selected as the next place of meeting.

New York City

Typhoid Fever Epidemic Continues.—Many new cases of typhoid fever continue to be reported in the southern and eastern portions of the city. There were 183 new cases reported for the week ended September 27, as against 42 cases for the corresponding week of last year. Dr. Lederle has expressed the opinion that the epidemic has reached its maximum and that a gradual decline may now be expected.

Personal.—Dr. Joseph A. Blake has resigned as a member of the faculty of the College of Physicians and Surgeons.——Dr. Lucius W. Hotchkiss suffered a fracture of the jaw, a dislocation of the right arm and a strain of the right leg by the overturning of his automobile at Parsippany, N. J., September 28.——Dr. Robert J. Morrison, Brooklyn, who has been seriously ill with septicemia, the result of an operation wound, is reported to be out of danger.——Dr. Emil Boehm is said to be seriously ill with septicemia, due to an operation wound.

OHIO

New Officers.—Muskingum County Medical Association: president, Dr. Wilbert C. Bateman; secretary, Dr. John R. McDowell, both of Zanesville.

Open-Air School Ready.—The Columbus Society for the Prevention and Cure of Tuberculosis opened an open-air school in Hudson Avenue, October 1.

New Society Organized.—Members of the medical profession of Tiffin, met on September 30, and organized the Academy of Medicine of Tiffin, with Dr. Harmon B. Gibbons, temporary chairman, and Dr. John A. Gosling, temporary secretary, and an initial membership of thirteen.

Rendezvous for Physicians.—Members of the Dayton Academy of Medicine are fostering a movement to secure a clubhouse and headquarters for physicians of the city, to be a common rendezvous for medical men of all schools, and to provide, in addition, a clinical laboratory.

Greene County Must Pay Its Share.—The supreme court has decided, in the joint county tuberculosis hospital case, that Greene County must pay its share of the cost of the hospital, which was built by Champaign, Clarke and Madison counties. This share amounts to $6,254.15

Personal.—Drs. Paul Morrison and D. W. Medill, Tiltonsville, who sustained injuries in an automobile accident, recently, are reported to be doing well.——Dr. R. DeWitt Robinson, Akron, was operated on for appendicitis at Grace Hospital, Cleveland, October 5.——The residence and office of Dr. Barnett E. Winters, New Straitsville, were burned, September 27, with a loss of $2,500.——Dr. Henry H. Bowman, Canton, was seriously injured by the discharge of a gun in the hands of a companion, while hunting near Harlem Springs, September 16.——Dr. James A. Hubbell, Quincy, was seriously injured in a runaway accident, September 11.——Dr. Albert F. Spurney, Cleveland, has sailed for Europe.——Dr. John P. DeWitt, Canton, has returned from abroad.

Cincinnati

Hospital Ready.—The new Cincinnati Hospital will be ready for public inspection, October 19 and 26.

Personal.—Dr. Christian B. Holmes has been appointed dean of the medical department of the University of Cincinnati, succeeding Dr. Paul G. Woolley.——Dr. Theodore Wenning has returned after service in a Servian military hospital during the Balkan war.

PENNSYLVANIA

Medical Scholarship for Women Students.—A congress of women's clubs of Western Pennsylvania has pledged itself to place a scholarship, valued at $12,000, in the medical school of the University of Pittsburgh, for the benefit of women students. In furtherance of this plan a banquet was given at the Fort Pittsburgh Hotel, Pittsburgh, October 11, at which Dr. William M. Polk, president of the New York Academy of Medicine, Dr. Evangeline W. Young, founder of the School of Eugenics, Boston, and others, spoke.

Personal.—Dr. Samuel G. Dixon, state commissioner of health, was operated on for abdominal abscess in the University Hospital, Philadelphia, October 3, and is reported to be making satisfactory progress toward recovery.——Dr. Cyrus B. King, Pittsburgh, fell on the floor of a bank in Pittsburgh, October 4, fracturing his femur.——Dr. Edward B. Shellenberger, Warren, has been appointed assistant medical inspector of dispensaries by the state commissioner of health.——Dr. George R. S. Corson, Pottsville, has been elected secretary of the Schuylkill County Antituberculosis Society.

Philadelphia

Typhoid Still Prevalent.—Typhoid fever is still prevalent in the city, despite the efforts of the health authorities to stamp it out. The number of new cases of the disease reported during the past week aggregated sixty-five. This is an increase of eleven over the number reported in the preceding week.

Personal.—Dr. Charles A. O'Reilly has returned from abroad.——Dr. W. T. Robinson, while leaving church, October 2, was stricken with cerebral hemorrhage and is reported to be in a serious condition in the University Hospital.——Dr. Edward B. Hodge was seriously injured, October 3, in a collision between his motor-car and a street-car on the Chestnut Street bridge, and is under treatment in the Presbyterian Hospital.

Foreign Visitors.—Dr. Roger Croissant, Paris, visited Philadelphia October 6, to study the system of training nurses with a view of organizing similar work in France.——Dr. Giuseppe Bastianelli, Rome, is spending several days in this city visiting the medical institutions.——Dr. Adolf Engler, professor of botany in the University of Berlin, and Dr. Karl Freiherr von Tubeuf, professor of botany in the University of Munich, are the guests of Professor Harshberger, of the University of Pennsylvania.

For Healthier Babies.—A baby improvement contest, for the purpose of arousing mothers in congested sections of the city to strive for better hygienic environment for their children, will be inaugurated November 15 by the newly formed Child Federation. A resolution authorizing this step was adopted at a meeting of the federation October 8. The contest will be carried on in certain districts of the city and each will cover a period of eight weeks. A prize in the form of cash or a medal will be offered to the mothers whose babies show the greatest improvement eight weeks after entering the contest. The work of the mothers will be outlined and directed by the members of the federation. The resolution was proposed by Dr. Samuel McClintock Hammill.

Demands Sanitary Barber Shops.—The director of public health, Dr. Joseph S. Neff, has issued a warning against barber shops which persist in practicing insanitary methods. Efforts are to be made to compel institutions of this character to instal modern sanitary apparatus for the proper sterilization of materials used in the work. Dr. Neff is preparing a law for the licensing of barbers and the following are some of its provisions: The registration of all barber shops. The prohibition of the use of any article which is not sterilized by a recognized process after each use. The refusing of barbers' licenses to persons suffering from skin or other communicable diseases. No powder puff, sponge or finger bowl must be used for a customer. Customers suffering from skin or other communicable diseases must not be waited on unless the instruments used belong to the individual in question.

UTAH

New Officers.—Fifth District Medical Society at Ogden: president, Dr. Herbert A. Adamson, Richmond; secretary-treasurer, Dr. Carlyle K. MacCurdy, Ogden.

Personal.—Dr. George H. Christy, Vernal, was operated on at the Latter Day Saints' Hospital, Salt Lake City, for appendicitis, September 18.——Dr. Harry B. Forbes, Ogden, has returned after a trip around the world.

New Officers of State Association.—The nineteenth annual meeting of the Utah State Medical Association was held in Salt Lake City, September 23 and 24, and the following officers were elected: president, Dr. John F. Critchlow, Salt Lake City; vice-presidents, Drs. Joseph R. Morrell, Ogden; Heber E. Robinson, American Fork, and Margaret A. Freece, Salina; secretary, Dr. W. Brown Ewing, Salt Lake City (reelected); treasurer, Dr. Howard P. Kirtley, Salt Lake City (reelected); councilor for the third district, Dr. Horace G. Merrill, Provo; delegate to the American Medical Association, Dr. Sol G. Kahn, Salt Lake City; and alternates, Drs. William R. Tyndale, Salt Lake City, and Robert S. Joyce, Ogden. It was decided to hold the 1914 meeting in Salt Lake City.

VIRGINIA

Antitoxin May Be Secured at Any Time.—The State Board of Health has arranged for the all-night attendance of at least one employee at office in Richmond to insure the prompt shipment of diphtheria antitoxin.

New Society Organized.—Pursuant to a request from Dr. Southgate Leigh, president of the Medical Society of Virginia, a meeting of physicians of Lunenburg County was held in Victoria, September 16, and the Lunenburg County Medical Society was organized, with the following officers: president, Dr. Thomas C. Harris, Kenbridge; vice-president, Dr. Walter E. Vest, Meherrin, and secretary, Dr. Edward P. Oden'hal, Victoria.

Personal.—Dr. and Mrs. Charles R. Grandy, Norfolk; Dr. and Mrs. Edward H. Miller, Jr., Danville; Dr. Stuart McGuire, Richmond, and Dr. Leigh Buckner, Roanoke, have returned from Europe.——Dr. and Mrs. Charles W. P. Brock, Richmond, celebrated their golden wedding anniversary, October 1.——Dr. Samuel S. Snarr, Wheatfield, was seriously burned in a gasoline explosion, recently, and is under treatment in Memorial Hospital, Winchester.——Dr. W. B. Dodge, Stuarts Draft, was thrown from his automobile recently, dislocating his right shoulder.

New Officers.—Sussex County Medical Society, at Petersburg: president, Dr. Lee O. Vaughan, Waverly; vice-president, Dr. Joseph F. Slade, Sussex; secretary, Dr. Clarence P. Neblett, Burts.——Accomac Medical Association at Olney, September 28: president, Dr. Fletcher Drummond Parksley; secretary, Dr. John W. Robertson, Onancock.——Old Dominion Medical and Surgical Society—fourth annual session at Petersburg: president, Dr. Thomas J. Fawcett, Lynchburg; secretary, Dr. W. Alexander Crowder, Petersburg; coresponding secretary, Dr. Harrison L. Harris, Richmond. Lynchburg was selected as the next place of meeting.——Shenandoah Valley Medical Association at Woodstock: president, Dr. William P. McGuire (reelected); secretary, Dr. J. M. Allen, both of Winchester.

WISCONSIN

Health District Heads.—The governor has appointed the following district health officers under the law passed by the last legislature: Drs. Guy W. Henika, Beaver Dam; W. C. Bennett, Oregon; J. M. Furstman, LaCrosse, and L. E. Spencer, Wausau.

New Officers.—Wisconsin State Medical Society, First District Branch, at Oconomowoc, September 12: president, Dr. Henry G. B. Nixon, Hartland; secretary-treasurer, Dr. S. Breck Ackley, Waukesha.——Wisconsin State Medical Society, Second District Branch, tenth annual meeting at Racine: president, Dr. George H. Young, Elkhorn; secretary-treasurer, Dr. Milton V. DeWire, Sharon.

To and From Europe.—Dr. Charles W. Giesen, Superior, and family, left for Europe, October 4. At a farewell banquet, Dr. Giesen was presented with a gold watch by members of the profession of Superior and other friends.——Dr. Luther A. Potter, Superior, has returned from Europe.——Dr. John W. Lee, Superior, sailed for Europe, September 23.——Drs. Soren Sorenson and J. Sotheran Keech, Racine, have returned from Europe.——Dr. Maurice L. Henderson and Dr. and Mrs. James H. Hackett have returned from Europe.

Medical Women Meet.—The Wisconsin Medical Women's Society held its fourth annual meeting at Milwaukee, September 30 and October 1, and elected the following officers: president, Dr. Julia Riddle, Oshkosh; vice-president, Dr. Carrie A. Frost, Chippewa Falls; secretary, Dr. Irene G. Tomkiewicz, Milwaukee, and treasurer, Dr. Helen Binnie, Poynette. The society adopted a resolution petitioning the legislature to pass an amendment requiring a certificate of health from men as well as from women before the issuance of marriage licenses.

State Secretaries Meet.—At the annual meeting of the State Association of County Secretaries, October 1, the following officers were elected: president, Dr. Joseph F. Smith, Wausau; vice-president, Dr. Daniel Hopkinson, Milwaukee, and secretary, Dr. L. Rock Sleyster, Waupun. A committee consisting of Dr. William Zierath, Sheboygan, Joseph P. McMahon, Milwaukee; Theodore J. Redlings, Marinette; Charles S. Sheldon, Madison, and George E. Hoyt, Menomenee Falls, was appointed to confer with the legislative committee of the State Medical Society in regard to medical legislation in Wisconsin.

Personal.—Dr. George E. Hoyt, Menomenee Falls, recently appointed district health officer, has been declared ineligible, as he already is a member of the state senate.——Dr. John N. Rock, Milwaukee, sustained a compound fracture of the right arm while cranking his automobile about two weeks ago. He is now improving after a tedious illness due to infection of the wound.——Dr. Gilbert E. Seaman, Milwaukee, has been appointed surgeon general of the state, vice Dr. Edward H. Grannis, Menominee, resigned.——Dr. Ulysses G. Darling, Lake Geneva, has been appointed assistant professor of mental diseases and clinical neurology in the medical department of the University of Illinois.

State Society Election.—The Wisconsin State Medical Society held its sixty-seventh annual convention in Milwaukee, October 1 to 3. The following officers were elected: president, Dr. Charles S. Sheldon, Madison; vice-presidents, Drs. Curtis A. Evans, Milwaukee; Clarendon J. Combs, Oshkosh, and Edward Kinne, Elkhorn; councilors, Drs. William F. Zierath, Sheboygan, fifth district; Henry W. Abraham, Appleton, sixth district, and Thomas H. Hay, Stevens Point, ninth district; delegate to the National Legislative Council of the American Medical Association, Dr. Arthur J. Patek, Milwaukee; delegate to the Council of Medical Education of the American Medical Association, Dr. Henry B. Hitz, Milwaukee; delegate to the American Medical Association, Dr. John M. Dodd, Ashland, and alternate, Dr. John F. Pember, Janesville. Oshkosh was selected as the place of meeting for 1914.

GENERAL

Southern Physicians to Meet.—The annual meeting of the Southern Medical Association will be held in Lexington, Ky., November 18-20, under the presidency of Dr. F. A. Jones, Memphis.

Railway Surgeons to Meet.—The New York and New England Association of Railway Surgeons will hold its twenty-third annual session at the Hotel Astor, New York, October 22, under the presidency of Dr. J. W. Le Seur, Batavia, N. Y.

Corrected List of Traveling Society Officers.—The following is a corrected list of the officers of the American Society for Physicians' Study Travels: presidents, Drs. James M. Anders, Philadelphia, William J. Mayo, Rochester, Minn., Lewellys F. Barker, Baltimore, and Rudolph Matas, New Orleans; secretary-general, Dr. Albert Bernheim, Philadelphia.

Railway Surgeons' Convention.—The sixth annual meeting of the Association of Surgeons of the Norfolk and Western Railway was held October 2 and 3 and the following officers were elected: president, Sparrell S. Gale, Roanoke, Va.; vice-presidents, Drs. William B. Morrison, Hagerstown, Md., Philip H. Kelley, Vivian, W. Va., George M. Marshall, Portsmouth, Ohio, Richard E. Venning, Charlestown, W. Va.; secretary-treasurer, Dr. Thomas D. Armistead, Roanoke, Va.

Southwestern Physicians Hold Meeting.—The annual meeting of the Medical Association of the Southwest was held in Kansas City, Mo., October 6-8, and the following officers were elected: president, Dr. S. S. Glasscock, Kansas City, Kan.; vice-presidents, Drs. Jefferson D. Griffith, Kansas City, Mo., James E. Dodson, Vernon, for Texas; David A. Myers, Lawton, for Oklahoma, and Leonard R. Ellis, Hot Springs, for Arkansas; and secretary-treasurer, Dr. F. H. Clark, El Reno, Okla. (reelected). The next meeting will be held in Galveston, Tex.

Death of Professor Kutner.—The cable announces the death of Prof. Robert Kutner of the University of Berlin, aged 46. He has been in charge of the Empress Frederick House for Medical Study, the central headquarters for official postgraduate instruction in Germany, ever since its foundation in 1906. He has also been the editor of the official organ of the "Aerztliche Fortbildungswesen," as the entire postgraduate movement is called. Kutner has published several works on urologic subjects, and was the first who succeeded in photographing the interior of the bladder. A description of the Empress Frederick House was published in The Journal, March 24, 1906, page 894. The information bureau conducted there has been of great use to students of the medical sciences.

Mississippi Valley Association Meeting.—Mississippi Valley Medical Association will meet in New Orleans, October 23-25. At the close of the meeting arrangements have been made for a special trip to the Panama Canal Zone. The steamer *Turrialba* has been chartered, and will sail from New Orleans, October 25. The boat is scheduled to arrive in Colon, October 30, remaining until the evening of November 3; arriving at Bocas del Toro the next morning and remaining there twenty-six hours. On the return trip she will arrive in Colon on the morning of November 6, and will arrive in New Orleans on November 11. On the first day there will be symposiums on "Social Hygiene" and "The Kidney." In the evening the address by the president on "The Civic Importance of Some Phases of the Neuroses, with Suggestions as to Their Control"; the address in surgery, by Dr. William L. Rodman of Philadelphia, on "Carcinoma, Especially the Precancerous Stage"; the address in medicine, by Dr. Henry B. Favill, Chicago, on the "Child Culture, the Prime Function of Organized Medicine"; and the memorial address by Dr. John A. Witherspoon of Nashville, Tenn., will be delivered. On the second day there will be a symposium on "The Circulation and Blood-Pressure"; and the third day symposiums on "Pediatrics" and "Anaphylaxis."

The Modern Hospital: A New Journal.—"An agent for the collection and dissemination of experience and knowledge concerning their (hospital workers') common service to humanity." As such this new entrant on the field of medical journalism is announced. Needless to say, there is need for a journal devoted to the business as well as the professional side of the present-day hospital. There are at present 6,665 hospitals in the United States, with a capacity of more than 600,000 beds, representing an investment in lands, buildings and equipment of at least $1,500,000,000, and an annual maintenance outlay of $250,000,000. It is these interests that this journal is intended to serve. The general appearance of the journal is pleasing; the advertisements are in no way objectionable; the reading matter is of the highest type, consisting of articles from such men as A. J. Ochsner, A. W. Dunbar, J. G. Mumford, H. B. Howard and others—a total of sixty-eight pages of reading matter of varied interest to those interested in the hospital problem. The editorial staff should be commended for the plan and arrangement of the journal. It should meet with a favorable reception.

Bequests and Donations.—The following bequests and donations have recently been announced:

The New York Hospital for Scarlet Fever and Diphtheria Patients, $15,000 by the will of Mrs. Louisa Mintern.

Presbyterian Hospital, New York City, $12,500 by the will of Otis K. Dimock.

Beth Israel Hospital, New York City, $5,000; Mount Sinai Hospital, $3,000; United Hebrew Charities, $2,500; Lebanon Hospital and Montefiore, each $1,500; the Hospital for Deformities and Joint Diseases and Har Monah Hospital, each $1,000 by the will of Samuel J. Silverman.

Mount Sinai Hospital, New York City, Montefiore Home, and German Hospital, each $2,500 by the will of Max E. Bernheimer.

Royal Victoria Hospital, Montreal; Montreal General Hospital, and Montreal Maternity Hospital, each $50,000, and Royal Alexandra Hospital for Infectious Diseases, Montreal, and Ross Memorial Hospital, Lindsey, Ont., each $25,000 by the will of Mr. James Ross of Montreal.

The Hospital of the Protestant Episcopal Church, Philadelphia, $10,000, and the trustees of the University of Pennsylvania $50,000 by the will of Anna Blanchard.

Galesburg (Ill.) Cottage Hospital, $15,000 by the will of Mary Davis McKnight.

Methodist Hospital, Indianapolis, a donation of $1,500 by Thomas B. Rooker of Mooresville, Ind.

College of Physicians and Surgeons, New York City, a gift of $2,500 from Clarence K. Mackay for surgical research.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 4, 1913.

The Radium Institute: Important Discoveries

From the Radium Institute some important discoveries in radium therapy are announced. The quantity of radium in the institute is, at the present price of the value of $400,000, and amounts to 4 gm. At the institute it has been demonstrated that the radium emanation has exactly the same properties as pure radium and is as efficient for curative purposes. This is a discovery of the highest practical importance, for previously radium treatment could be given only at the institute, as it was not practicable to lend this extremely valuable and limited substance. Now the emanation fixed in a hollow plate or tube is sent out to physicians for use on patients. Thus if a physician wants 200 mg. of radium for use on a patient its cost, $20,000, would be prohibitive. But for a comparatively trifling sum the institute can supply a plate containing radium emanation which will have the same effect. There is this difference, however, the activity of the emanation decreases, falling to one-half strength in three and one-half days. At present, 1 gm. of radium is devoted wholly to producing emanation for distribution, and as the demand is so great 1.5 gm. is about to be used. Another branch of the activity of the institute is the supply of water impregnated with radium emanation for consumption in certain affections. The institute is supplying radium emanation solution of a strength of from 1 to 2 millicuries per liter. The Radium Institute was opened in August, 1911, and since that time the work has steadily increased. At first it was open from 8 a. m. to 6 p. m. for the purpose of treating patients. So numerous were the poor patients that a night clinic had to be added sixteen months ago. It is open until 11:30 p. m., and sometimes until midnight. The building contains duplicate sets of apartments — one for the accommodation of paying patients and the other for the poor. No patient is seen except on the introduction of a physician. Most of the poor patients are sent from the hospitals. During the past eleven months about 800 patients had been treated and over 7,000 treatments have been administered. During the month of August the institution was closed in order that members of the staff, who were working at high pressure and all of whom have radium burns on their hands, might have a holiday and rest, which is the only known cure for these burns. There are in the institute forty-two pieces of radium apparatus, adapted for application to various parts of the body. Radium has been mounted on apparatus for several hospitals and institutes in the United States, Germany and Denmark. The reason why the applications have been made for apparatus from abroad is that by experiments extending over several months the staff has succeeded in producing a varnish which will withstand the action of heat, antiseptics, alcohol and other influences.

The British Medical Association and the Insurance Act; Threatened Fission

Though the insurance act is working fairly smoothly all over the country and friction is not more than is to be expected under a new scheme of such magnitude as to provide for medical attendance on the whole working-class population of the country, it appears to be exerting a profound disruptive effect on the British Medical Association. It may be remembered that just before the act came into operation, at the beginning of the year, the British Medical Association attempted to prevent the working of medical benefit by ordering those who had signed "the pledge" not to undertake service under the act. This order was disobeyed by the greater part of the physicians involved. Subsequently the association released the remainder from the pledge. Thus there are in the association several bodies who may be described as "first panel men," "second panel men" and "antipanel men" (those who still will have nothing to do with the act). As might be expected, the action of the first panel men has aroused considerable resentment among the others. The question whether or not they were justified in their action was discussed in THE JOURNAL at the time. Not only is there the ill feeling between those who are working the act and those who will not, but also there is a clash of interests. The non-panel men have lost some of their patients, as insurance is compulsory and free attendance is provided. They continue to demand that the insured should be given the power of contracting out of the act, and the money provided for medical benefit allotted to them. Some of them have gone so far as to ask that the old control by friendly societies of medical benefit be restored so that they might be enabled to perform the work outside the act; yet the abolition of this control was one of the association's points. This would obviously not be to the advantage of the panel physicians, who would lose patients. A non-panel medical league has been formed to federate various non-panel associations which have come into existence all over the country. The number of non-panel physicians is estimated at from 6,000 to 10,000, but a good many of these do not practice in the industrial classes, and therefore are not parties in the struggle. The non-panel men maintain that they uphold the original claims of the British Medical Association, and that the association pronouncement that the act is "derogatory to the profession" has never been rescinded. Dissatisfaction has arisen because the British Medical Association, being in the unfortunate position of having to consider the interests of all its members, cannot satisfy both parties. The non-panel men now complain that it has not found the time or the energy to develop strong action on their behalf. This dissatisfaction has reached such a pitch that one of the metropolitan divisions, the Wandsworth, has by a majority resolved that "the present propanel attitude of the association is reacting detrimentally to the interests of members of the profession in general and in particular to the interests of non-panel practitioners, and approves the action of all such members resigning from the association." It is stated that resignations are being received from all over the country; but whether the number will be serious or not remains to be seen. The position which has arisen is somewhat curious, because when the act came into force the trouble of the association was of an exactly opposite kind. As pointed out in THE JOURNAL at the time, the machine was captured by the extreme opponents of the insurance act, and some of the most important and active members of the association, Sir Victor Horsley, Dr. McLean (chairman of the representative body), Dr. Lauriston Shaw (chairman of the ethical committee), and others who believed the extreme policy to be disastrous, resigned from the association. At the same time a new organization of physicians, opposed to the policy of the association and entirely in favor of working the act (the State Service Medical Association), was formed. Thus the association has lost supporters, first because its opposition to the act was so extreme, and now because it is not sufficiently extreme. It has to support those who are working the act and form the greater part of its members. The extremists are certainly doing no good for themselves and only harm to the association. It is their policy which was responsible for the humiliating defeat of the association by the government. The association had obtained by its efforts greatly improved terms and would have done much better to rest on its laurels, consent to work the act and then direct its attention to improving its defects which the operation of the act would disclose. They would not have lost the ear of the government and would have avoided defeat and these dissensions. The extreme party is showing itself more stupid than ever, for their policy has become still more hopeless. They represent only a minority of the profession, and although they receive some encouragement from the conservative press, anxious to embarrass the government in every possible way, they have no political support which could be of any service. If the conservative party, in which alone they can have hope, came into power, it would have to consider the votes of the millions who form the friendly societies much more than the few thousand discontented doctors.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 2, 1913.

Death of the Chemist, Jules Ogier

The eminent chemist, Jules Ogier, doctor in physical sciences, formerly president of the Société de chimie and a member of the Comité consultatif d'hygiène publique de France, is dead at the age of 60 from an affection of the heart. By his death chemistry has lost one of its most celebrated representatives who ought even to be considered, from one point of view, a creator of the science. After being assistant in chemistry at the Ecole supérieure de pharmacie de Paris, Ogier became assistant to the great chemist Berthelot at the Collège de France. From this time Ogier published remarkable works. In 1883 Brouardel appointed him director of the toxicologic laboratory in the medicolegal service of the Paris prefecture of police, and for the next thirty years his findings were of the utmost importance. His work in public hygiene included the study of *introducing water into* most of the large cities of France; the processes of the purification of drinking-water; the substitution of zinc white for white lead, the distribution of the sewage of Paris, etc. He had numerous pupils and wrote thirty volumes of judicial reports and many works of great value, including his Traité de chimie toxicologique, which appeared in 1899 and is universally recognized.

Similar Susceptibility of Both Strong and Weak to Virulent Microbes

September 22, at the Académie des sciences, A. Chauveau reported the experiments which have convinced him that the strong are as apt as the weak to contract virulent diseases, those of short duration like sheep-pox, as well as those which develop very *slowly, like tuberculosis. Chauveau believes that* it would be chimerical to attempt to destroy the plague of tuberculosis by trying to render the organism immune by suppressing all the causes of physical pain. Direct action against the tuberculous agent and the protection of healthy persons from those who harbor the bacillus are the only means which can be used against the ravages of the disease. These *logical measures applied against the propagation of* virulent *maladies of man and the lower animals constitute,* besides, the basis of general rules of hygiene both public and private. According to Chauveau, an exception in the case of tuberculosis would be scientific nonsense.

Beginnings of the Pasteur Treatment of Rabies

I *have already spoken of the celebration of the twenty-fifth* anniversary of the founding of the Institut Pasteur (The Journal, Oct. 4, 1913, p. 1307). Dr. A. Loir, a nephew of Pasteur and director of the Bureau d'hygiène du Havre, has published in the *Bulletin médical* interesting memories of certain episodes connected with the discovery of the Pasteur treatment that are known to few, if any.

Pasteur had proved *that animals could be immunized* against rabies *even if bitten. At this time, July, 1885, an* Alsacian child, young Meister, who had been severely bitten by a mad dog, came to his laboratory. Pasteur consulted Vulpian and Grancher, and they believed that the child was practically certain to die, and that the treatment which had been a success with animals ought to be tried. Grancher made the inoculations *through eighteen days, and during this* time Pasteur lived in constant anguish. On all sides he was being criticized, in some instances violently, for his method. This hurt him, but he was confident and he went ahead. Six months afterward, the shepherd Jupile came to the laboratory, bitten in the hand by a rabid dog. To-day Jupile is concierge at the Institut Pasteur.

Dr. Loir relates that *several weeks after the arrival of the* shepherd, Grancher was wounded in handling the virus and decided on immediate inoculation. Deeply moved, Pasteur gave his assent, but insisted on being inoculated too, since he did not wish Grancher to run the risk alone, the success of the treatment not yet having been established. Grancher flatly refused, and Pasteur was much annoyed by his refusal.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Sept. 26, 1913.

Personal

Professor Löhlein of Leipsic has been appointed prosector at the municipal hospital and director of the bacteriologic examination office in Charlottenburg.

Potassium Cyanid in Hotels

Lately potassium cyanid has been used for cleaning silverware in hotels. The public-health authorities (Wissenschaftliche Deputation für das Medizinalwesen) have protested against this use of potassium cyanid and *other substances* which may develop hydrocyanic acid *on mixing* with acids. On the basis of this report an ordinance has been passed prohibiting the use of potassium cyanid and similar compounds for the cleansing of metal dishes and tableware in hotels, restaurants, sanatoriums, etc. The use of this poison violates the provisions of the police ordinance dated February 22, 1906, regulating the traffic in poisons.

Municipal Purchase of Mesothorium

The great rush for the purchase of mesothorium and radium by municipalities, already noted, has been suddenly checked by the city of Munich. The city government of that city has refused *for the present* to carry out the resolution to buy $50,000 (200,000 marks) worth of this costly material. It is believed that there are positive evidences that the factories engaged in producing mesothorium are raising the price unduly. For this reason, more exact information is to be obtained by the municipal authorities before the purchase of *the* preparation is consummated in Munich and other cities.

German Congress on Welfare Work for Infants

At the congress held in Breslau in the middle of September the important questions of the declining birth-rate and of infant hygiene held the first place for discussion. The leading address was by an authority on economics, Professor Julius Wolf of Breslau, who showed that since the seventies the birth-rate *in Germany* has steadily declined. The number of births was at first restricted only among *the upper classes, but* this phenomenon has steadily spread to other strata of society, and at present even the working people make restriction of births the law of marriage. A lessening of the number of children at the present time presents many economic advantages *for the household and for the* personality of the wife. Unfavorable pecuniary conditions accentuate the *tendency to* restrict the number of births, and a favorable turn of affairs following later scarcely lessens this tendency. However, this is true only for the cities. In the rural districts another law holds. There children are regarded as assets, at any rate *during periods when there is a dearth of farm-hands.* Families with many children should be given advantages in wages and in taxes, and care should be taken that the children who are already born are kept alive by the measures of infant and child hygiene, and finally, the hindrances should be removed which at the present time induce parents to limit their offspring. There is no need to fear depreciation in the quality of the offspring *if the decline of the birth-rate is checked.*

The second speaker was Professor Langstein, director of the Kaiserin Augusta-Viktoria House at Berlin, who discussed the problem from the standpoint of the physician. The view that the reduction in births is occasioned by racial degeneration, venereal diseases, or alcoholism, is not sustained by reliable evidence. The reduction in births is essentially to be attributed to *voluntary limitation of the number of children.* The *opposition* to this decline in the birth-rate must therefore be based on this fact, and it will be effectual as a rule only through economic measures. For the present, the essential efforts in the depopulation question must be along the lines of combating infant mortality. It is evident that the higher mortality of children in families with many children is not an inherent necessity, and the success of infant welfare work has been demonstrated in figures again and again. However, statistical investigation in various circles of society shows that a greater danger seems to threaten the child in a family with a higher birth-rate. Thorough statistical investiga*tion and care*ful analysis by physicians studying infant hygiene of the fate of children *from* families with many children furnish the answer that only in the rarest cases the death of the child is dependent on the number of children in the family, and that the mortality depends far more on the kind of care and nourishment which they receive than on the number *of children.* Investigation has shown *that in a number* of families in which all the children were breast-fed for at least thirty weeks, there was scarcely any difference in the *infant* mortality between families with a smaller and those with a greater number of children. This fact, that breast-*feeding* is able to maintain even a large number of *children* healthy and vigorous, places before us *the task of* using all the means *afforded by infant welfare* work to induce mothers to return to the natural mode of nutrition. The experience of physicians shows also the evils of the one- and two-child systems. *To be an* only child, of itself, almost always means *disease.* Race degeneration must occur in a class of the population in which the two-child system prevails. On the other hand, it is indicated by statistics that a favorable position is held by the third-born *child.* The selective influence of infant mortality, in the sense of Darwin, has been disproved. The view that in *countries* with a higher infant mortality the fitness for military service is better, and tuberculosis less frequent, is denied. Thanks to the advance of pediatrics, we are not so helpless in reference to the feeble physical constitution of children as previously. By individualizing diet and care we can develop *capable* individuals out of constitutionally inferior infants.

Deaths

Reginald Heber Fitz, M.D., died of ulcer of the stomach, September 30. With the death of Dr. Fitz there passed away a great physician and teacher who made contributions to medical literature that always will be a source of credit to American medicine.

Born at Chelsea, Mass., in 1842, Dr. Fitz graduated from Harvard in 1864 and took up the study of medicine under the direction of Jeffries Wyman, eminent physician and anatomist, at the same time taking the lectures at the Harvard Medical School, from which he received his medical degree in 1868. In the meantime he served as house officer in the Boston City Hospital. Immediately after graduation from the medical school he went to Europe and there he worked with Oppolzer and Skoda in Vienna, Virchow in Berlin, Cornil in Paris, and Murcheson in London, returning to Boston in 1870. At this time he published in Virchow's *Archiv* an article on bronchiectasis. He became microscopist to the Massachusetts General Hospital and instructor in pathological anatomy in the Harvard Medical School, and shortly afterward assistant professor of pathology, achieving almost at once a name as a thorough, skilful and reliable pathologist. At about this time the system of instruction in Harvard Medical School was rearranged into graded courses and Dr. Fitz as secretary of the faculty exercised much influence on medical education. In 1878 he was made professor of pathological anatomy and his pupils love to tell of his clear-cut, concise, and effective way of teaching. In 1887 he was appointed visiting physician to the Massachusetts General Hospital and in 1892 professor of medicine in the Harvard Medical School, retiring in 1908. The long apprenticeship that he served in pathological anatomy in preparation for his clinical work is especially noteworthy. In 1886 he published* the article that will carry his name farthest, because thereby he finally established the importance of perforation of the appendix. This article is a medical classic. Two or three of his conclusions may be repeated:

Reginald Heber Fitz, 1842-1913

"The vital importance of the early recognition of perforating appendicitis is unmistakable.

"The diagnosis in most cases is comparatively easy.

"Its eventual treatment by laparotomy is generally indispensable."

Another classical article is the one entitled "Acute Pancreatitis," in which he established the occurrence and symptoms of acute inflammatory processes in the pancreas. His contributions to medical literature were not numerous, the number of titles being about thirty-eight. On his sixty-fifth birthday his former pupils at the hospital and his assistants issued a volume in his honor entitled "Medical Papers Dedicated to Reginald Heber Fitz." He received numerous other medical honors. In the "Medical Papers" A. K. Stone writes as follows:

"The work that Dr. Fitz has done during the active period of life has been largely critical and judicial, though always with a constructive tendency. He has formed his opinions for himself, and then bravely stood by them, even at times when they were in opposition to those of a majority of his friends. . . . His general position has been that of a conservative and critical counselor rather than a radical leader. His industrious habits or work have been individualistic on the whole. He has studied the work of others, rearranged their ideas or presented them in a new and true light to the world, but has not sought to be the leader of a group of students searching for new facts. Yet his personal industrious application of study has been a source of inspiration to those who have had the good fortune to be his students and associates."

Harry Boyle Runnals, M.D. M.R.C.S., England, 1897; formerly of Skagway, Alaska; from 1888 to 1892 surgeon in the U. S. Indian Service for the district from Tillamook to Vancouver Island; chief surgeon for the Northwest Mounted Police, and chief surgeon for the White Pass and Yukon Railroad; later a practitioner in Puyallup, Wash.; died at the home of his son in Melmont, Wash., September 10, from cerebral embolism, aged 59.

Bennett Wood Green, M.D. University of Virginia, Richmond, 1855; assistant surgeon U. S. Navy. until the outbreak of the Civil War, when he resigned to become a surgeon in the Confederate Navy; and afterward for several years a practitioner of Cordoba, Argentine Republic; later a resident of Charlottesville, Va.; died in the University Hospital, Baltimore, August 3, from heart disease.

Daniel Crosby Greene (license, years of practice, Massachusetts); a missionary of the American Board Commissioners for Foreign Missions in Japan since 1869, and on whom the Order of the Rising Sun, third class, was bestowed by the Emperor of Japan in June last; a veteran of the Civil War; twice president of the Asiatic Society, Japan; died in Tokio, September 15, aged 70.

Orren Burnham Sanders, M.D. Boston University School of Medicine, 1879; of Boston; a Fellow of the American Medical Association; for many years a member of the faculty of his alma mater; who was thrown from his car in a collision with another motor-car in Quincy, Mass., September 22; died from his injuries in the Quincy City Hospital, September 25, aged 57.

Hiram S. Plummer, M.D. College of Medicine and Surgery, Cincinnati, 1860; Illinois Army Board, 1862; assistant surgeon of the 110th Illinois Infantry, U. S. V., and later surgeon of the 152d Illinois Infantry, U. S. V., during the Civil War; since that time a practitioner in Mount Vernon, Ill., and once mayor of that city; died at his home, August 28, aged 82.

William Eberle Shaw, M.D. Medical College of Ohio, Cincinnati, 1873; a Fellow of the American Medical Association; for thirty years a practitioner of *Cincinnati*, and a member of the staff of Christ Hospital; was killed accidentally at his ranch in Santa Rosa, Cal., September 5, by a fall from a tree.

Edwin Candee Baldwin, M.D. Bellevue Hospital Medical College, 1896; a Fellow of the American Medical Association; for thirteen years chief bacteriologist for the Port of New York, and pathologist to St. Vincent's Hospital; died at his home in Rosebank, Borough of Richmond, October 3, aged 48.

Morgan T. Micou, M.D. Tulane University, New Orleans, 1902; of Clifton Forge, Va., and later of Charlottesville, Va.; died at his home, September 4, from diabetes, aged 33.

---

* Am. Jour. Med. Sc., 1886, xcii, 321.

Fred Eugene Parker, M.D. Dartmouth Medical School, Hanover, N. H., 1899; for eight years physical instructor of Brown's University, Providence, R. I., and director of the gymnasium; later a practitioner of Hoxsie, R. I.; died recently at his home in Victoria, B. C., from septicemia, aged 44.

Hugh Matthewson Patton, M.D. McGill University, Montreal, Que., 1890; New York Homeopathic Medical College, New York City, 1891; a justice of the peace of Montreal and one of the founders of the Homeopathic Hospital; died at Little Metis, Que., September 5, aged 47.

Paul George McConnell, M.D. Western Pennsylvania Medical College, Pittsburgh, 1899; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home in Beaver, about September 17, aged 39.

Rufus Raymond Raessler, M.D. Jefferson Medical College, 1894; local surgeon at Anthon, Iowa, for the Illinois Central Railroad; for twenty years a practitioner of that town; died in a hospital in Sioux City, Iowa, September 7, from nephritis, aged 43.

John Turner Cushing, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1864; a surgeon of volunteers during the Civil War, and later for several terms, mayor of Huron, Ohio; died at his home in Turner, Me., September 17, aged 82.

Charles Elwyn Fogg, M.D. Rush Medical College, 1879; a fellow of the American Medical Association; died at his home in McConnell, Ill., September 18, from the effects of morphin self-administered, it is believed with suicidal intent, aged 60.

Albert T. Brundage, M.D. Castleton (Vt.) Medical College, 1840; a member of the Medical Society of the State of Pennsylvania; for nearly fifty years a practitioner of Susquehanna County, died at his home in Harford, September 14, aged 93.

Herman F. Schenck, M.D. Medical College of Evansville, Ind.. 1882; a veteran of the Civil War; died at his home near Oakland City, Ind., September 12, from injuries received four weeks before in a runaway accident, aged 66.

Lorin Hall, M.D. Bellevue Hospital Medical College, 1880; formerly a member of the faculty of the University of Michigan, and for ten years a practitioner of Chicago; died at his home in Wilmette, Ill., October 9, aged 59.

John M. Smith, M.D. Medical College of the State of South Carolina, Charleston, 1868; a Confederate veteran; a leading citizen of Williston, S. C.; died at the home of his daughter, September 11, from heart disease, aged 68.

Weston Theodore Plumb, M.D. Rush Medical College, 1874; for twenty years a practitioner of Van Cleve, Iowa, and later of Tama, Iowa; died at his home in South Toledo, Iowa, September 8, from heart disease, aged 65.

Domenico Nicola Golini, M.D. University of Naples, Italy, 1900; a prominent member of the Italian colony of Providence, R. I.; died at his old home in Capriata, Volturno, Italy, September 14, from pneumonia, aged 40.

William Henry Kirk Davis, M.D. New York University, New York City, 1887; a Fellow of the American Medical Association; died suddenly from nephritis in his office at East Orange, N. J., September 24, aged 50.

Alfred H. Lee, M.D. University of Pennsylvania, Philadelphia, 1865; of Easton, Pa.; surgeon of volunteers during the Civil War; died in the Easton Hospital, August 25, after a surgical operation, age 73.

William Rex Paterson, M.D. Buffalo (N. Y.) Medical College, 1901; for three months after graduation in government service in Cuba; died in his home at Lloydell, Pa., September 6, from nephritis, aged 39.

William A. Bradford, M.D. University of Louisville, Ky., 1882; a member of the State Medical Association of Texas; died at his home in Birthright, August 2, from carcinoma of the stomach, aged 61.

Lester R. Riggs, M.D. Eclectic Medical Institute, Cincinnati, 1901; formerly an attorney of Salt Lake City, Utah; died at his home in Avondale, Cincinnati, September 4, from heart disease, aged 41.

Letitia Wiseman, M.D. Gross Medical College, Denver, 1900; of Cheyenne, Wyo.; a fellow of the American Medical Association; died in Denver, September 21, from tuberculosis, aged 49.

John C. Neely, M.D. Medical College of Georgia, Augusta, 1896; a Fellow of the American Medical Association; of Bainbridge, Ga.; died in a sanatorium in Atlanta, September 19, aged 43.

Roland Davis Jones, M.D. University of Pennsylvania, Philadelphia, 1881; while driving his automobile in Upper Broadway, New York City, September 25; died from heart disease, aged 57.

Joseph Parker Corry, M.D. Bennett Medical College, Chicago, 1892; physician of Waseca County, Minnesota; died at his home in Alma City, June 1, from an overdose of chloroform, aged 55.

Henry Harrison Sloan, M.D. Chicago Medical College, 1869; for thirty-two years a practitioner of Chicago; a veteran of the Civil War; died at his home in Rogers Park, October 9, aged 77.

Ben M. Carr (license, Tennessee, 1889); of Knoxville, Tenn.; register of Knox County from 1878 to 1886; died in the Lincoln Memorial Hospital, Knoxville, September 2, aged 56.

Sally A. Harris, M.D. New York Medical College and Hospital for Women, New York City, 1878; formerly of White Plains, N. Y.; died at Scarsdale, N. Y., September 29, aged 87.

William Britton Shuman, M.D. Medico-Chirurgical College of Philadelphia, 1907; of Upper Strasburg, Pa.; died in his home, September 21, from nervous breakdown, aged 31.

Henry A. Smith, D.D.S. Ohio College of Dental Surgery, 1857; a Fellow of the American Medical Association; died at his home in Cincinnati, September 10, aged 80.

Harlen W. Carter, M.D. Medical College of Indiana, Indianapolis, 1880; formerly of Moline, Ill.; died in Indianapolis, Ind., September 6, from cerebral hemorrhage.

William Pierce Manaton, M.D. New York Homeopathic Medical College, New York City, 1886; died at his home in Greenport, L. I., N. Y., August 6, aged 48.

R. J. Cross (license, Texas, years of practice, 1907); for twenty years a practitioner of Ridgeway; died at his home, August 23, from nephritis, aged 57.

John C. Fahey, M.D. Jefferson Medical College, 1883; mayor of Wilmington, Del., from 1899 to 1901; died at his home in that city, September 21, aged 53.

William H. Fisher, M.D. Pulte Medical College, Cincinnati, 1876; died suddenly at his home in Minneapolis, Minn., September 22, from heart disease, aged 65.

Edna Griffin Terry, M.D. Boston University School of Medicine, 1886; who went to China as a medical missionary in 1887; died in China recently.

Melvin G. Paden, M.D. University of Louisville, 1912; died in the California Hospital, Los Angeles, Cal., September 14, from heart disease, aged 24.

Charles Weed Shepard, M.D. University of Michigan, Ann Arbor; died at his home in La Rose, Ill., October 1, from heart disease, aged 66.

L. B. Lester, M.D. Geneva (N. Y.) Medical College, 1864; died at his home in Greenville, Mich., about September 16, aged 86.

Philo L. Alden (License, Arkansas, 1903); died at his home in Osage Mills, Ark., September 12, aged 66.

Marriages

Raymond Hanger Dunn, M.D., Huntington, W. Va., to Miss Janet Thorne Alexander of Charleston-on-Kanawha, W. Va., October 9.

Arnold Grant Webb, M.D., Cincinnati, to Miss Josephine Cumisky of Waterbury, Conn., in Cincinnati, September 25.

Edmond J. Moquin, M.D., Fairwater, Wis., to Miss Donna Carmen of Columbus, Ohio, at Milwaukee, September 17.

John Joseph McArdle, M.D., Lawrence, Mass., to Miss Anna Gertrude Stone of North Andover, Mass., October 1.

Robert Wayne Richards, M.D., to Miss E. Claire Robinson, both of Philadelphia, at Smethport, Pa., September 26.

Francis Gorham Brigham, M.D., Boston, Mass., to Miss Helen Greeley McKissock of Brookline, Mass., October 1.

Charles Franklin Smith, M.D., Topton, Pa., to Miss Esther Naomi Folk of Farmington, Pa., September 25.

Adolph J. Neas, M.D., to Miss Eva Ottinger, both of Parrottsville, Tenn., at Newport, Tenn., September 23.

Francis Xavier Mulherin, M.D., Augusta, Ga., to Miss Mary Eulalia Feuger of Savannah, Ga., September 25.

Arthur Frederick McQueen, M.D., Amherst, Ohio, to Miss Wastelle A. Inks of Lorain, Ohio, September 20.

Edward Bruce Beasley, M.D., Fountain, N. C., to Miss Louise Xma Ferebee, of Shawboro, N. C., October 7.

Robert F. Elvington, M.D., Mullens, S. C., to Miss Annie Laurie Randolph of Kinston, N. C., September 10.

Delmer R. Duey, M.D., Belleville, Ill., to Miss Elsie Hamilton Huston of Troy, Mo., at St. Louis, October 1.

Guy Livingston Howe, M.D., Rochester, N. Y., to Miss Margaret Woodcock of Passaic, N. J., October 4.

Alfred W. Brown, M.D., Quincy, Mass., to Miss Caroline Maud Merrill of Amesbury, Mass., September 26.

Richard Baker Austin, Jr., M.D., Union, Miss., to Miss Jessie Morse of Tylertown, Miss., September 11.

Leigh F. Watson, M.D., Oklahoma City, Okla., to Miss Dora Lowe Watson of Fairmont, W. Va., September 15.

Harry Anthony Keenan, M.D., Stoughton, Wis., to Miss Martha Wilson of Edgerton, Wis., September 24.

Joseph Thomas Slattery, M.D., to Miss Anna Elizabeth McMeer, both of Dunlap, Iowa, September 16.

Isaac N. Kelly, M.D., Nespelem, Wash., to Miss Jenny Olive Easts, of Moscow, Ida., September 24.

Walter W. Held, M.D., Huntington, W. Va., to Miss Lois Jean Goodrich of Kansas City, Mo., recently.

Elvin Otis Brown, M.D., Kellerville, Ill., to Miss Lena Felters, at Griggsville, Ill., September 19.

William Kelley Hale, M.D., Wilmington, Ohio, to Miss Dessa C. Raydure of St. Louis, October 8.

Charles L. Hunsucker, M.D., Drexel, N. C., to Miss Fleta Moore of Hickory, N. C., September 30.

Roscoe Samuel Van Pelt, M.D., Malden, Wash., to Miss Edna Oglesby of York, Neb., October 1.

Grover C. Pritchett, M.D., Dana, Ind., to Miss Magdaline Hueston of Odon, Ind., September 24.

Glen E. Peters, M.D., Bloomfield, Neb., to Miss Agatha Bruner of Randolph, Neb., recently.

Carl L. Bradley, M.D., Newhall, Iowa, to Miss Iva G. Stoddard, Geneva, Iowa, October 1.

A. P. E. Schulz, M.D., St. Charles, Mo., to Miss Clara Gallagher of St. Louis, October 1.

W. R. Taylor, M.D., Milwaukie, Ore., to Miss Eunice Elton of The Dalles, Ore., September 21.

David F. Gerber, M.D., to Miss Ruth Martindale, both of Middletown, Ohio, September 24.

Aaron Denenholz, M.D., to Miss Fedora Zepler, both of New York City, September 25.

Fielding G. Carroll, M.D., to Miss Clyde Farris, both of Cave City, Ky., October 15.

Harry D. Clark, M.D., to Miss Gladys Gold at Grand Rapids, Mich., recently.

Ellis Campus, M.D., to Miss Rose Litinoff, both of New York City, August 30.

Duty of Physician to Report Diseases.—The physician is engaged in a work which places him in a position of especial and peculiar responsibility to the community, a work which carries with it moral and usually statutory obligations, on the proper fulfilment of which depends to a large degree the ability of the health department to perform its functions. The requiring of those desiring to practice to pass an examination and to be duly licensed and registered is a partial recognition of this, and presumably such licenses are given on the assumption that the recipient will comply with the requirements imposed on physicians by law, among which is invariably the duty of reporting cases of certain diseases coming to his knowledge. The physician who does not comply with such statutes not only places himself in the class of those who violate the law, but also shows himself indifferent to his moral obligations as they affect the welfare of the community. It would be well to give more definite recognition to the relationship the physician holds to the health department and to the community. Such recognition would undoubtedly be agreeable to physicians and bring them into closer cooperation with the health authorities in whose jurisdictions they practice.—Trask in *Pub. Health Rep.*

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MEDICAL JOURNALS AND THE GREAT AMERICAN FRAUD

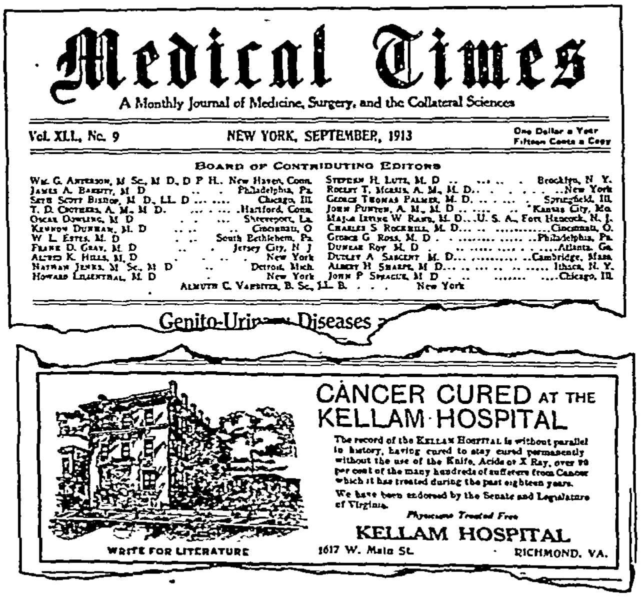
How the Medical Times Aids and Abets Quackery, with the Moral Support of Members of the Medical Profession

Two letters have been received, both from physicians. One comes from New York City and the other from Alexandria, Va. Each letter contained an advertisement of the Kellam Hospital, Richmond, Va., cut from the *Medical Times*. Here is the New York letter:

> "*To the Editor:*—I am enclosing an advertisement clipped from the *Medical Times*. It seemed to me an especially flagrant example of what may happen in the absence of proper supervision of the advertising pages of a medical magazine. The condition would seem all the worse in this instance as among the 'Board of Contributing Editors' are listed men like Howard Lilienthal of New York and Almuth C. Vandiver, who is Counsel for the Medical Society of the County of New York. The *Medical Times* is sent to two of the physicians who live at this address without charge and without solicitation. Many advertisements of proprietary preparations are inserted in type indistinguishable from that of the body of the magazine and it is of course possible that its financial backing comes entirely from the manufacturers of these drugs."

And this is from Virginia:

> "*To the Editor:*—The statements made in the advertisement of the Kellam Hospital in the October number of the *Medical Times* are so out of the ordinary that I ask you to tell us something if you can of their institution and its methods of cure. Can such things as are stated in this advertisement be true? 'Physicians Treated Free?' 'Endorsed by the Senate and Legislature of Virginia?' What can all this mean to the sufferer from cancer? If true, let the whole world of sufferers know the glorious news."



Medical Times

A Monthly Journal of Medicine, Surgery, and the Collateral Sciences

Vol. XLI., No. 9 NEW YORK, SEPTEMBER, 1913 One Dollar a Year Fifteen Cents a Copy

Board of Contributing Editors

Wm. G. Anderson, M. Sc., M. D., D. P. H.	New Haven, Conn.	Stephen H. Lutz, M. D.	Brooklyn, N. Y.
James A. Babbitt, M. D.	Philadelphia, Pa.	Robert T. Morris, A. M., M. D.	New York
Seth Scott Bishop, M. D., LL. D.	Chicago, Ill.	George Thomas Palmer, M. D.	Springfield, Ill.
T. D. Crothers, A. M., M. D.	Hartford, Conn.	John Punton, A. M., M. D.	Kansas City, Mo.
Oscar Dowling, M. D.	Shreveport, La.	Maj. Irving W. Rand, M. D., U. S. A.	Fort Hancock, N. J.
Kennon Dunham, M. D.	Cincinnati, O.	Charles S. Rockhill, M. D.	Cincinnati, O.
W. L. Estes, M. D.	South Bethlehem, Pa.	George G. Ross, M. D.	Philadelphia, Pa.
Frank D. Gray, M. D.	Jersey City, N. J.	Dunbar Roy, M. D.	Atlanta, Ga.
Alfred K. Hills, M. D.	New York	Dudley A. Sargent, M. D.	Cambridge, Mass.
Nathan Jenks, M. Sc., M. D.	Detroit, Mich.	Albert H. Sharpe, M. D.	Ithaca, N. Y.
Howard Lilienthal, M. D.	New York	John P. Sprague, M. D.	Chicago, Ill.

Almuth C. Vandiver, B. Sc., LL. B. . . . New York

Genito-Urin Diseases

CANCER CURED AT THE KELLAM HOSPITAL

The record of the Kellam Hospital is without parallel in history, having cured to stay cured permanently without the use of the Knife, Acids or X Ray, over 90 per cent of the many hundreds of sufferers from Cancer which it has treated during the past eighteen years.

We have been endorsed by the Senate and Legislature of Virginia.

Physicians Treated Free

KELLAM HOSPITAL

WRITE FOR LITERATURE 1617 W. Main St. RICHMOND, VA.

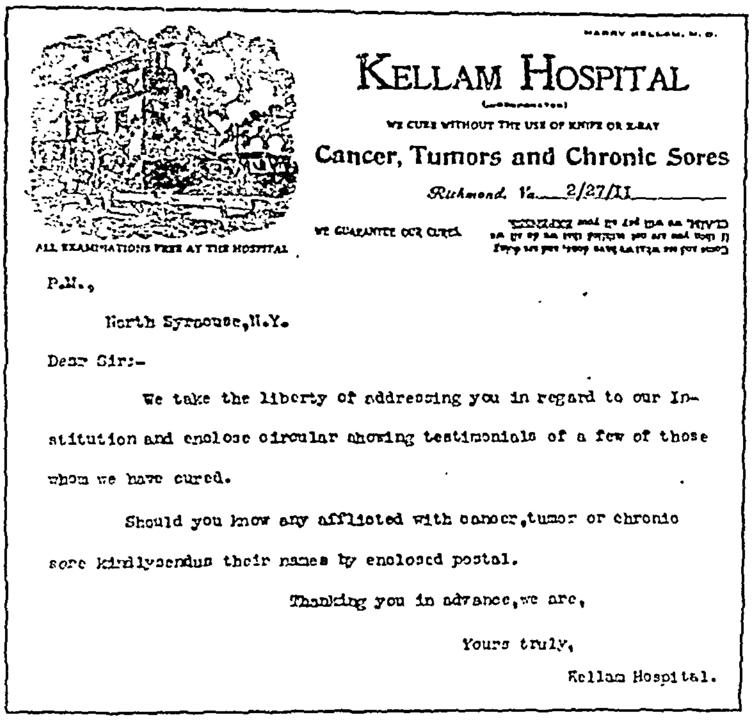
Fig. 1.—Photographic reproductions from the *Medical Times*. Do the gentlemen whose names appear in the list of the "Board of Contributing Editors" realize that they are lending an air of respectability to an otherwise disreputable business?

Collier's paid its respects to the Kellam concern some time ago and we cannot do better than quote from its pages. Thus:

"Grief is the portion of the Kellam Cancer Hospital, of Richmond, Virginia, because in these editorials it has been grouped with other exemplars of the Great American Fraud. It offers the invariable and hollow mockery of testimonials and endorsements, which, as has been repeatedly shown, can be wheedled, browbeaten or bribed out of the victims of any form of quackery. It, of course, courts the fullest investigation, and desires that we send a representative to *investigate* whether its claims are not well founded. Unsuspected by the Messrs. Kellam, our representative has already investigated their claims, notably their statement that they are endorsed by the Legislature of the State of Virginia. Upon request for a copy of the endorsement they forwarded a weak subterfuge, and finally, on pressure, admitted that they could not produce the proof they had boasted. For their further consideration we present a brief parallel:

FROM THE KELLAM CIRCULAR	FROM A KELLAM LETTER
The Cancer is *removed* without the use of the knife or X-Ray . . . No roots or fibers left; *hence it can not return.*	We do not claim to *"cure them all."* We go further, and on our part we agree to treat, free of charge, any patient *who suffers a recurrence after having been treated by our method.*

"The italics are our own, but we cheerfully present them for elucidation to the Kellam Hospital. A little careful thought devoted to reconciling the irreconcilable may help them to forget their wo. Meanwhile, they make themselves out worse than they really are by pretending to withhold from the bitter need of humanity a true, non-surgical cure for cancer. If this were true; if, indeed, they had solved the problem which has baffled the greatest minds of modern science; if, having a genuine cure for the dreadful ailment which claims its increasing thousands of tortured victims yearly, they secrete their discovery for the sake of a few paltry dollars, then they are as cold-hearted as the sailors who pass within fair hail of the naked island on which some shipwrecked crew is starving, and keep their stony eyes on the compass. They have not even the excuse of the fanatical among the Christian Scientists who, denying the existence of pain, refuse to take measures to ease the cancer victim's suffering even at the last. Human nature is seldom so callous."



HARRY KELLAM, M. D.

KELLAM HOSPITAL

WE CURE WITHOUT THE USE OF KNIFE OR X-RAY

Cancer, Tumors and Chronic Sores

ALL EXAMINATIONS FREE AT THE HOSPITAL

WE GUARANTEE OUR CURES

Richmond, Va. 2/27/11

P.M.,

North Syracuse,N.Y.

Dear Sir:-

We take the liberty of addressing you in regard to our Institution and enclose circular showing testimonials of a few of those whom we have cured.

Should you know any afflicted with cancer,tumor or chronic sore kindlysendus their names by enclosed postal.

Thanking you in advance,we are,

Yours truly,

Kellam Hospital.

Fig. 2.—One way of drumming up trade in the "cancer cure" business! The Kellam Hospital sends letters like this to the postmasters of small towns asking these government officials to furnish it with what, in the parlance of quackery, is known as a "sucker list." A delightful business, isn't it? And this, gentlemen of the "Board of Contributing Editors," is the sort of thing to which you are lending your influence and good names!

As for the *Medical Times:* This publication for years contained comparatively little advertising. Then it came into the hands of Romaine Pierson, who also owns the *Practical Druggist.* Mr. Pierson is not a physician and to him the medical profession is but a commercial problem. He is publishing a medical journal for the money there is in it, and for this he is not to be censured. Questions of advertising policy, in such circumstances, are determined on a commercial basis. When an advertising contract is submitted, for a product that physicians would know to be fraudulent, the question that arises is, "Can it be put over?" Manifestly, a medical journal published purely as a business venture would not dare long to fly in the face of the opinions of those from whom it received its support—its subscribers and contributors. If our correspondents will go through the advertising columns of the *Medical Times* they will find many, many other frauds, less cruel perhaps than the Kellam advertisement, but no less disreputable or discreditable to the medical profession.

After all is said and done, it is enlightened public opinion that is causing publishers of lay magazines and newspapers to eliminate fraudulent "patent medicine" and quack advertisements. Until the medical profession takes an equally enlightened stand, physicians may expect to be inflicted with such commercial medical journals as the *Medical Times*, the *International Journal of Surgery*, the *American Journal of Surgery*, *American Medicine*, and several other papers that are published primarily in the interest of the advertiser. When such journals as these find they cannot get a circulation among physicians so long as they carry advertisements similar to many now appearing in their pages, these advertisements will be eliminated, but not before. Many physicians are receiving such journals at a nominal price or, as one of our correspondents notes, free. The physician who permits such journals to come to his office must share with the paid subscribers the responsibility for the low standard of medical journalism.

THE ETHICS OF MEDICAL JOURNALISM

Two Physicians Express Themselves on This Subject

After the preceding article was in type, we received, in the same mail, two letters that are so apropos that we reproduce them. The first was from a town in Illinois, and was dated October 11. Here it is:

To the Editor:—About two weeks ago, a representative of the Surgery Publishing Company, New York, N. Y., came to ——— Ill. soliciting subscriptions for the *American Journal of Surgery.* Together with numerous others I subscribed —chiefly on the strength of the contributors whose articles appeared in the sample numbers shown by the agent.

Since receiving the first number (October) one look at the advertising pages has shown me why the subscription price for a year and a quarter is one dollar. Anasarcin, Tongaline, Cactina Pillets, Hagee's Cordial of Ext. Cod Liver, Burnham's Soluble Iodin, Papine, Phenalgine, Anusol, etc., etc.

I have written to the Surgery Publishing Company, telling them in no uncertain language that there is no room on my reading desk for such. Have you ever exposed this journal, and the attitude of our big, brilliant, eminent men in permitting their articles—presumably original—to fill space in such a journal? [Yes! The Journal, Dec. 16, 1911, pp. 2,000 and 2,013.] This letter is not for publication—at least not with name or city. Keep up the good work. . . .

The other, dated October 10, follows:

To the Editor:—That little story about medical journal advertising and methods of obtaining paid-up subscribers, in this week's Journal, makes me blush. I am guilty. Unlike Dr. Genella, I swallowed the bait—but the bait was even more tempting in my case; the flattering "editor" offered me twenty-five subscriptions to distribute among my friends, all for an "abstract." Thank goodness, I only accepted five subscriptions, but worse luck, I sent them to young men by preference. So I am a deep-dyed offender indeed. Extenuating circumstances affected my susceptibility somewhat, however. I have noticed that prominent men like Beverly Robinson, A. Rose, Tom A. Williams, Wayne Babcock, and Morris —the latter, at least, a really able man and a brilliant writer —contribute to these peanut journals occasionally. If they do, why not I? There's nothing like being in big company, you know.

So far as I know, my "abstract" has not yet been published. On looking over the sample copy of this monthly I found an advertisement printed right in the list of contents—in fact, it was the second "original article" in the issue, as brave and respectable as you please! Then, with characteristic Hibernian impetuosity I got out my machine and pounded that editor a strong protest with a dire command not to use my "abstract" in his miserable organ. But I have never received the manuscript, nor any reply to my stern rebuke. I wish I had been cautious like Dr. Genella.

Wm. Brady, M.D., Elmira, N. Y.

Correspondence

Simple Method of Sterilizing Rubber Gloves

To the Editor:—For the past three years I have been using a simplified method of preparing my rubber gloves by which they are rendered sterile and, at the same time, given a coating of talcum, making them easy to adjust. In my hands this method has proved eminently satisfactory, and while some theoretical objections may be raised as regards the completeness of the sterility, results in about three hundred cases have shown absolute safety. My reason for giving this method is that many physicians fail to use rubber gloves in their obstetric work, at least as a routine measure, simply because of the rather laborious methods used in their preparation. My method is as follows:

An 8-ounce bottle is half filled with talc, to which has been added 2 tablets of mercuric cyanid. The bottle is then filled with 90 per cent. alcohol. This solution is constantly kept on hand in the office. The used gloves are merely washed in hot water, rinsed, placed in a sterile dish and the well-shaken solution poured over them. They are then removed and placed on a sterile towel to dry. The evaporation of the alcohol leaves the gloves completely covered with the dry talc-cyanid powder. They are then wrapped in the towel and placed in the obstetric satchel, while the left-over solution is returned to its original bottle. Gloves prepared in this way have been used by me in cases requiring version, removal of adherent placenta, manual dilatations, etc., and as yet I have never had a case showing septic symptoms of any kind.

Ray Ernest Smith, M.D., Rutland, Vt.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TEST FOR CARBON MONOXID IN THE ATMOSPHERE

To the Editor:—Please give me test for carbon monoxid (CO) in the atmosphere. E. Caster, Solomons, Md.

Answer.—*Boettger's Test.*—Paper moistened with palladium chlorid solution (0.0002 gm. in 100 c.c.) becomes darkened in the presence of carbon monoxid.

Dejust Method.—This method depends on the reducing action of carbon monoxid on a weak ammoniacal silver solution. If air containing carbon monoxid be passed through an ammoniacal silver solution, metallic silver will be precipitated and, according to the amount of the latter, the solution takes on a brown or black color. While the change in color of the solution may be used as a qualitative test for carbon monoxid, Dejust uses the reaction for the quantitative determination as follows: 20 c.c. of 1 per cent. ammoniacal silver nitrate solution are allowed to drop through the air from a funnel the stem of which has been drawn out to a fine point, so that the liquid will require one hour to pass through. The end of the funnel is so arranged that the drop falls through a few centimeters of air to a dish. The liquid having run through is returned to the funnel and allowed to run through three more times. The color of the solution is then compared with silver solutions which have been allowed to act on air containing carbon monoxid 1:1,000, 1:5,000, and 1:10,000. (*Chem. Centralbl.*, 1905, ii, 21, from *Compt. rend. Acad. d. sc.*, cxl, 1250.)

Blood Test.—Most commonly the reducing action on blood is used for the detection and estimation of carbon monoxid. Qualitatively the presence of carbon monoxid in air may be recognized by the change in color when water to which has been added a drop of blood is treated with the air to be tested for carbon monoxid. While a dilute blood solution is yellow, it becomes pink when treated with traces of carbon monoxid. More accurately the test is carried out with the aid of a spectroscope as follows: To the sample of air collected in a jar pure water is added, and into this a drop or two of blood from a pricked finger is made to fall, so as to make a dilution of about 1 in 300. This diluted blood is next well shaken up with the air in the jar, and then a small quantity is placed in a spectroscope, for an examination of its absorption bands. As so examined, the appearance in the spectrum will closely approximate to that of oxyhemoglobin. Oxidized hemoglobin shows two well-marked bands in the yellow and in the green parts of the spectrum, both lying between D and E; a little ammonium sulphid is now added and the bottle well shaken; if carbon monoxid is present the spectrum will undergo no change, but if absent, the ammonium sulphid will reduce the hemoglobin, as indicated by a single absorption band in the spectrum occupying an intermediate position with regard to the two original bands. (J. L. Notter: "Treatise on Hygiene," Ed. 2, p. 195.)

LITERATURE ON RADIUM

To the Editor:—Please refer me to books or medical journals giving information on the subject of radium.

W. S. Butterbaugh, M.D., Westcliffe, Colo.

Answer.—The following articles are some of those that have been published within the last year:

Soddy: Interpretation of Radium, Putnam. Price, $1.75.
Wickham and Degrais: Radium Therapy, Funk and Wagnalls. Price, $5.
Endemic Goiter and Radio-Activity, The Journal, editorial, June 7, 1913, p. 1798.
Radium in the United States, editorial, The Journal, June 14, 1913, p. 1882.
Radium in Arthritis Deformans, Query and Minor Notes, The Journal, June 28, 1913, p. 2061.
Kelly, H. A.: Radium in Surgery, Society Proceedings, The Journal, May 17, 1913, p. 1574.
Pinch, A. E. H.: Work Carried Out at Radium Institute from Aug. 14, 1911, to Dec. 31, 1912, *Brit. Med. Jour.*, Jan. 25, 1913; abstr., The Journal, Feb. 22, 1913, p. 630.
Sticker, A.: Radium and Mesothorium Treatment of Tumors, *Berl. klin. Wchnschr.*, Dec. 2, 1913.
Finzi, N. S.: Recent Literature on Roentgen Rays and Radium, *Practitioner*, February, 1913.
Schiff, E.: Radium Loaned to Practitioners, *München. med. Wchnschr.*, Feb. 4, 1913.
Lerskov, A. N.: Radium Water, *Oklahoma State Med. Assn. Jour.*, March, 1913.
Turner, D.: Patients Treated by Radium in Royal Infirmary, Edinburgh, During 1912, *Brit. Med. Jour.*, March 22, 1913; *Lancet*, March 22, 1913.
Giacchi, G.: Influence of Radium on Blood-Pressure and Blood-Count, *Policlinico*, Rome, March 30, 1913.
Arzt, L., and Kerl, W.: The Biologic Action of Radium, *Wien. klin. Wchnschr.*, April 3, 1913.

DID SYLLA HAVE A PARASITIC DISEASE?

To the Editor:—Below I quote from "Plutarch's Lives" an incident in the life of Sylla (often written Sulla), and I am curious to know just what the parasite was that tormented his latter days. As this old soldier had courtesans and dissolute persons in plentiful numbers for his companions, it is possible that he had syphilitic ulceration of the anal region and that this had become infested with maggots, though I have not been able to find that the word "louse" which Plutarch uses meant other than our familiar *Pediculus capitis* or *P. vestimenti.* As Sylla "lost a great quantity of blood" there is the probability of malignancy of the rectum with ulceration and fatal hemorrhage, but that still does not explain the character of the parasites which the historian calls "lice."

"Notwithstanding this marriage, he kept company with actresses, musicians and dancers, drinking with them on couches night and day. His chief favorites were Roscius the comedian, Sorex the arch mime and Metrobius the player, for whom, though past his prime, he still professed a passionate fondness. By these courses he encouraged a disease which had begun from unimportant cause; and for a long time he failed to observe that his bowels were ulcerated, *till at length the corrupted flesh broke out into lice.* Many were employed night and day destroying them, but the work so multiplied under their hands that not only his clothes, baths and basins, but his very meat was polluted with that flux and contagion, they came swarming out in such numbers. He went frequently by day to scour and cleanse his body, but all in vain; the evil generated too rapidly and too abundantly for any ablutions to overcome it. There died of this disease among those of the most ancient times, Acastus, the son of Pelias; of later date, Alcman the poet, Pherecydes the theologian, as also Mucius the lawyer; and if we may mention ignoble, but notorious names, Eunius the fugitive, who stirred up the slaves of Sicily to rebel against their masters, after he was brought captive to Rome, died of this creeping sickness."

Then follow some interesting incidents in the closing days of this remarkable man, conferences with various officials with whom he had been associated in the affairs of government, and the strangling of Granius, which he caused to be done in his presence. The narrative closes with the statement that "through the straining of his voice and body, the imposthume (abscess) breaking, he lost a great quantity of blood. On this, his strength failing him, after spending a troublesome night, he died."

Fayette Dunlap, M.D., Danville, Ky.

Answer.—Stewart and Long, in their translation of Plutarch (London, Bell & Co., Bohn), suggest that Plutarch is here adopting a popular tradition circulated by Sylla's enemies. No other historian mentions it. Appian in his "Civil Wars," Volume I, says "Sylla died in his sixtieth year the most fortunate of men in his end and in everything else, both in name and estimation, if, indeed, a man should think it good to have obtained all his wishes."

What the condition that preceded his death was is hard to say. Tuberculosis seems not unlikely, for death was immediately preceded by "the bursting of an imposthume followed by the vomiting of a quantity of blood." There had been a lingering disease. Sylla knew that his end was approaching, and lung and rectal troubles, both tuberculous, occur together often enough to make this seem probable. The Greek word used by Plutarch for the living things engendered in the wound is φθεῖρες, lice, from which our phthiriasis. Popularly it was believed that these could be spontaneously generated in dirty disease conditions, but no medical writer asserts any such thing. Plutarch probably accepted a current tradition in order to point the moral of vice finding its own punishment in most deterrent results. He was the original propagator of information as to the physical results of vicious living, and exhibits often the tendency to exaggeration of the muck-raker at all times.

HYPODERMIC ADMINISTRATION OF IRON

To the Editor:—In administering iron hypodermically:

1. What preparation is used?
2. What is the dosage?
3. Are the injections only subcutaneous or deep?
4. How often repeated?
5. Are the results generally good and is there any advantage over the oral method?

H. R. Parker, M.D., Lunbar, Pa.

Answer.—1. Iron and ammonium citrate has been used for this purpose.

2. The dose is 0.13 gm. or 2 grains; in children ¾ grain.

3. The injections should be intramuscular.

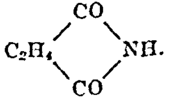
4. It is recommended to give the remedy every other day.

5. It is asserted that the results are more marked and are obtained more rapidly than when iron is given by the mouth, and that there is much less danger of disturbing the digestion. The method may in rare cases be of service, but in the majority of cases sufficient iron can be given by mouth without producing gastric irritation.

WEICHARDT'S ANTIKENOTOXIN

To the Editor:—Concerning the query, "What is Weichardt's Antikenotoxin?" (The Journal, Sept. 27, 1913, p. 1059), the following might be of interest:

Weichardt calls "antikenotoxin" (*retardive Hemmungskoerper*) a group of substances which inhibit the action of the fatigue-poisons called "kenotoxin." The latter are formed in the body during muscular exercise. The former arise when kenotoxin is formed or injected into the body, and they can be isolated from the blood-serum in a comparatively pure state. This is effected by dialyzing, as they pass through the membrane; the dialysate-water is evaporated and they are extracted from the residue with toluol or acetone. These substances, or others with a similar action, can also be prepared *in vitro* from protein. One of the preparations, although probably not one of the most active, could be purified by recrystallization and proved to be:



For further details, technic and literature see "Ueber Ermüdungsstoffe," by Dr. Wolfgang Weichardt, Stuttgart, Verlag von Ferdinand Enke, ed. 2, 1912, price, 2 marks.

F. W. L. Tydeman, M.D., Charlotte, N. C.

PINAUD'S EAU DE QUININE

To the Editor:—Kindly give me the formula of Ed. Pinaud's "Eau de Quinine." W. C. Mayes, Memphis, Tenn.

Answer.—Pinaud's Eau de Quinine appears to be a nondescript mixture of alcohol and water scented and colored, and containing a trace of quinin. The following statement is translated from "Hahn-Holfert-Arends Spezialitäten und Geheimmittel," sixth edition:

"Pinaud's Eau de Quinine contains neither quinin nor any other cinchona alkaloids, nor any other characteristic constituents of cinchona bark; the preparation is also devoid of salts of metals, tannin, salicylic acid and cantharides (Tscheppe)."

The following statement from "Thesaurus of Proprietary Preparations," by [illegible] E. Hiss, 1899, also probably refers to the Pinaud preparation:

"In a suit in the U. S. Circuit Court at Boston concerning its tariff classification, the court was satisfied 'that this article contains of absolute alcohol substantially 67 per cent. by volume; that the solid residuum, amounting to about 18/100 of 1 per cent., consists principally of an odoriferous resin having a fragrance similar to that of benzoin; a minute trace of quinin sulphate, and also a very small percentage of essential oils, the remainder being water.'"

The following formula is stated to yield a similar preparation:

"Alcohol	fl. oz.	10
Water	fl. oz.	5½
Yellow cinchona	av. oz.	½
Cochineal	gr.	30
Potassium carbonate	gr.	30
Tincture of benzoin	fl. dr.	2
Oil of bergamot	drops	30
Oil of sweet orange	drops	30
Oil of rose geranium	drops	10"

The American Medical Association Chemical Laboratory was asked to examine the preparation to determine the presence or absence of quinin. The following is the chemists' report:

"A specimen of Eau de Quinine recently purchased had a decided red color and a flavor like hair-oil. It contained alcohol and water, but appeared devoid of any appreciable quantities of glycerin or fatty oils. It did not respond to tests for methyl (wood) alcohol. The ethyl alcohol content was approximately 66 per cent. (by the provisional method of Association of Official Agricultural Chemists, Bur. Chem. Bull. 107, p. 83). The alcohol from 100 c.c. having been removed by distillation, the residue was made alkaline and extracted with chloroform. The chloroformic extractions were then extracted with acidulated water and the acid solution rendered alkaline and extracted with chloroform. On evaporation of the chloroform 0.0226 gm. of residue was obtained, which responded to the tests for quinin. From this it appears that Eau de Quinine contains about 0.02 per cent. of quinin or cinchona alkaloids."

From this examination it is seen that while at one time the addition of quinin to Pinaud's Eau de Quinine may have been considered unnecessary and useless, at the present time the preparation does contain a minute trace of quinin—just enough, perhaps, to escape prosecution under the federal Food and Drugs Act for misbranding.

LITERATURE ON SEWAGE DISPOSAL

To the Editor:—Please give me some information or refer me to literature on the building for hotel use of an inside toilet-room and proper disposition of sewage in a small town without sewers or city water-works. Cecil C. Smith, Stanton, N. D.

Answer.—It is not quite clear from our correspondent's letter whether water from tanks for flushing is available or whether the disposition of the sewage must be carried out by the dry method. If the latter, a new and recommended form of sanitary privy is described in *Public Health Reports* for July 25, 1913. In case modern sanitary plumbing can be used, a good description of disposal plants for isolated residences will be found in the *Bulletin of the Ohio State Board of Health* for July, 1911. This matter is also discussed in "Sewage Disposal," by George W. Fuller, McGraw-Hill Book Company, New York, 1912.

CORRECTION AS TO METHOD OF USING WRIGHT'S STAIN

To the Editor:—Slips are exceedingly rare in your excellent journal—in my opinion the best published in the English language; but I note that on page 1315, Oct. 4, 1913, you state, in answering a query regarding Wright's stain, that "specimen smears should be fixed before using" the stain. One of the great advantages of the method is, on the contrary, that it does not require a preliminary fixation of the preparation. The rest of the directions are correct.

X. Y. Z.

Answer.—This correction has been called to our attention by several others. Wright's stain contains methyl alcohol, which acts as a fixative. Heat is not necessary.

ALCOLA

To the Editor:—Can you give me information as to the composition and worth of Alcola, a "cure" for alcoholism, exploited by the Physician's Cooperative Association of Chicago?

Ralph H. Hertzler, M.D., Newton, Kan.

Answer.—Alcola is the same kind of fake as the rest of the mail-order liquor "cures." The Journal publishes a pamphlet ("Alcola," price 4 cents) on this preparation which answers our correspondent's question as to the standing of the Physician's Cooperative Association of Chicago and the value of the treatment.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

NEWSPAPER COMMENTS ON SEX HYGIENE

One of the questions at present exciting general interest among laymen is that of sex hygiene and the advisability of instructing children and young persons therein. Naturally the discussion rages most fiercely around the question of instruction in sex hygiene in the public schools. Many interesting opinions have been expressed by the newspapers of the country. The judicial thinker must recognize that this question as yet is still in suspense. There is not any unanimity of opinion or agreement on fundamentals sufficient to justify the candid and conservative observer in taking any definite position. Yet the discussion going on through the magazines and newspapers is of the greatest value in bringing to light different sides of the question, and in arousing public interest in the acquisition of more accurate knowledge of these vital subjects.

Stripped of all non-essentials, there are really three questions under discussion. These are:

1. Should children and young persons of preadult ages be instructed in sex hygiene?

2. If so, through what agency should this instruction come? Should it be through one or both parents, through a religious medium, through the public schools, or through books, pamphlets and leaflets of an impersonal character?

3. If it is decided that instruction on this subject should be given in the public schools, what is the best form in which it can be presented to the youthful mind?

Even the most superficial will admit that these three questions present many problems of the utmost complexity. It is difficult to see how any one animated by a calm, judicial spirit can take any other position than that of suspended judgment on the entire question at present. Whatever one may think of the advisability or desirability of sex hygiene instruction in the abstract, one is reminded of Captain Cuttle's famous saying, "The value of the observation lies in the application of it." The test of any scheme of instruction in sex hygiene is going to lie in the manner in which it is carried out, and in the tact, good judgment and common sense of the persons doing the teaching, whether they be parents, religious teachers, schoolteachers or writers.

The reflection of opinions on the part of the newspaper editors is interesting as showing the diversity of views expressed.

The Seattle (Wash.) *Post-Intelligencer*, commenting on the objections of the local superintendent of schools, says, "That sex hygiene is a matter for the future is too probable to admit of much doubt, but just now such instruction is decidedly impracticable . . . Before any such revolutionary change in the general notions of sex matters as is implied in the teaching of sex hygiene can be made, the vast body of public opinion must be attuned to it and made to recognize its necessity, not through controversy, but through intelligent appreciation of certain facts. To this end the present discussion for and against eugenics, foolish as it often is on both sides of the argument, is working. That the fundamental physical problems of life, once rigorously taboo, are now permissible topics for conversation is a sure index of the direction in which we are going."

The *Post-Intelligencer* takes a sound view of the value of present discussion, without in any way yielding its judgment as to its ultimate opinion. It is also perfectly sound in holding that the question "will solve itself gradually and quietly within the next generation, and the desired end will be attained at far less cost and with far more speed if it is not hampered with overanxiety for immediate results."

The Waterloo (Iowa) *Courier*, starting out with the proposition that "health is the foundation on which rests the happiness of a people and the power of a nation," lays particular stress on the necessity of public-school education in hygiene and sanitation. After elaborating an extensive program for public-school education, it says, "The health movement in our public schools has been transformed during the past decade from a purely negative movement, having as an object the avoidance of disease, to a splendidly positive movement, having for its aim the development of vitality." While the subject of sex hygiene is not specifically included in the *Courier* program, it evidently assumes that this will follow. "In these schools the physical, the mental and the moral will be developed together and not separately."

The Beloit (Wis.) *News* states that "wide difference of opinion still exists among schoolmen on this subject, although they are united in recognizing what President Foster of Reed College calls 'the social emergency,' the separation coming when the details of the exact part the public schools shall play in this campaign are taken up." After discussing the opinions of various educators, the *News* concludes that this question is assuming increasing importance in our school system, and that some practical solution for the problems involved will have to be devised.

The Fort Worth (Tex.) *Record* "seriously doubts the wisdom of any attempt of education in the public schools on this delicate question." It regards the subject as one of such sacredness that it should not be allowed to become a topic of careless and common conversation among the bold and irreverent Young Americas that constitute the school population. In the opinion of the *Record*, the proper teachers on such subjects are the fathers, mothers and family physicians. "The modern tendency to put all responsibilities of instruction on schoolteachers is dangerous in the extreme . . . The public school cannot take the place of the home or the church." While the *Record* recognizes the fact that "there are children without intelligent or watchful parents and without religious surroundings, and that these exceptions deserve consideration," it is of the opinion that a great mass of children in the United States come from proper homes and have no need of tuition in morals in the public schools. "Let the home, the physician and the church bear their own responsibilities in rearing the rising generation," is its final conclusion.

The Chicago *Record-Herald*, discussing the bulletin of the federal Bureau of Education on this subject, and the conflicting views expressed therein, finds nothing strange or unusual in this divergence of opinion. "The learned doctors never agree, and if society waited for unanimous consent of the experts nothing would ever be done. Questions are settled by experience, not by disputation." The *Record-Herald's* views on the outcome of reform movements and controversies are especially interesting. "Questions are forgotten, not settled. Unconvinced parties give up and take up new issues." The editor's application of this philosophy to the problem of sex hygiene is that sex hygiene as a course of study is undoubtedly coming in this country. The really significant fact is that so many educators, social workers, physicians and moralists have been converted to the idea in such a short space of time. The results it is willing to leave to the future.

The Wilkes-Barre (Penn.) *Record* asks, "Should sexology be introduced into the schools as a study or by way of a series of lectures?" After stating the arguments on both sides, the *Record* concludes, "We believe the weight of the argument is in favor of those who advocate a simple form in instruction for children who have reached the last year or two of grammar school." Believing that the amazing amount of evil from vice is the result of ignorance, the *Record* favors instruction which would "follow up the laws of Nature as revealed in plant life and animal life, so as to be without the element of harmful suggestiveness." Drawing a comparison between the evils done by intemperance and those caused by sexual vices, the editor concludes, "More can be done in the way of abstention from alcoholic indulgence by impressing young people with the astonishing physical consequences than in any other way, and so it is with the almost incredible consequences of sexual dissipation."

Probably no newspaper in New England is more ably edited or exercises a wider influence than the Boston *Transcript*. Its editorial point of view is sane and conservative. Its opinion is that "although educators and physicians have not yet agreed as to whether sex hygiene should be taught in the public schools, or how it should be taught if at all, it must be admitted that the whole question of sex education is assuming great importance in our city school systems."

The Philadelphia *Ledger*, on the other hand, regards the present agitation as a passing fad. "The zeal of the advocates of the proposed change is analogous to the zeal of the ultraprogressives who would reform the world by legislation." The *Ledger's* criticism of advocates of radical legislation for which no public support has been developed is thoroughly sound. "To such persons, an act placed on the statute books seems the end of positive effort for the betterment of the world. This secured, vigilance subsides and the honest-motived but ill-directed reformer settles down to a complacent satisfaction." While this is true of many reformers and agitators who seek to accomplish moral ends by legislation, it can hardly be applied with fairness to those advocating education and instruction as a means of influencing action. The *Ledger's* question, "Why should any adult impose his alarmist instruction on the youth?" is easily answered. It is because the adult has seen enough of the results of youthful folly to justify his alarm and to lead him to guard the youth from repeating and perpetuating the mistakes of previous generations. This is the only reason why adults are teachers and why youths are pupils. Age has accumulated knowledge and experience which it would hand down to youth. Summing up its argument, the *Ledger* decides that public schools do not need a course of sex hygiene. "They may need a healthier-minded attitude on the part of all teachers of biology, hygiene and physical instruction." In the opinion of the *Ledger*, the teachers opposing sex hygiene instruction have a more correct attitude of mind toward their subject than have the advocates of the plan, which the *Ledger* regards as a course "full of peril and demoralizing possibilities."

In addition to its editorial, the *Ledger* gives space to a number of letters discussing both sides of the question. One correspondent, while admitting that "the proposed new teaching is not without danger," hopes that eventually the letting in of light on this subject "will lead up to that happy condition when there will be no more nasty prudery about describing sex to mixed classes than there is now in describing the stamens and pistils of flowers." The correspondent rather cleverly attempts to spike the guns of the *Ledger's* editorial by quoting from an editorial which appeared in the next column on "Degeneracy in a Little Town," in which the repulsive conditions found in a Newfoundland village are described, with the editorial comment that "the difficulty seems to be that these people are content to be no better than their fathers were before them." While admiring the correspondent's ingenuity, it must be admitted that he is begging the question, since the point which the *Ledger* is discussing is whether such a course would make the children better than their fathers. Another correspondent takes the opposite side of the question, quoting Plato, Emerson, Rousseau and Herbert Spencer in support of his proposition that "the teaching of this delicate subject is for the parents, the church and the doctor."

The Chicago *Tribune* sums up the question in this fashion: "It is not a question of whether the youth shall remain ignorant or be instructed. It is a question whether it shall be well or ill instructed."

Collier's Weekly holds that "the argument for teaching sex hygiene is being cried in agonies. . . . The sob of a mother whose baby must go through life blind because of some one's ignorance is an argument for sex education that defies the glibbest debater."

Especially important as showing the probable attitude of the Roman Catholic Church on this question is an editorial in *America*, which designates the proposition to teach sex hygiene in the public schools as "the newest and most dangerous of all the educational fads now being daily foisted on us." The argument of *America* is for development of character in the public schools, rather than for an increase in detailed instructions in facts. "It is not the law of the mind that needs strengthening, but the law of the members that needs restraining; not more knowledge but more will is required." One kind of instruction in sex hygiene would meet the approval of *America*. "Instead of being worried about increasing the knowledge, be energetic and persistent in decreasing the desire. . . . It is the incentive that should be removed." The way to better conditions lies, in the judgment of *America*, in improving social conditions rather than in specific instruction of schoolchildren. "Let the sex hygienists put away the countless seductions which assail mankind and womankind on all sides, and they will effect something. Let the young have less desire, not more knowledge; strength of will, not complete information."

While recognizing the necessity of developing personal character and will power, as well as the uselessness of increasing knowledge without developing personal qualifications to correspond, *America's* argument is weak, in that it objects to a specific method of instruction and offers instead a vague general plan of reform. Doubtless, the sex hygienist would be glad to "put away the countless seductions which assail mankind and womankind on all sides." But how is such a stupendous task to be accomplished? To object to proper instruction in the public schools, and offer as a substitute a reform of newspapers, theaters, fashions, current fiction and habits of living hardly seems to be a practical criticism.

The Los Angeles *Graphic* thinks that such instruction is a duty of parents, but that 90 per cent. of American parents "dodge the responsibility of instructing their children properly in sex matters."

A correspondent of the New York *Independent* denounces the idea as "the most vicious of all the wild, indiscreet and dangerous suggestions made in behalf of the human race." The *Independent* correspondent is a true optimist. He says, "The world is growing better all the time and will continue if let alone on such subjects as this." If this is true, the pathway to the millennium is a straight and easy one.

In a multitude of counselors there may be safety; but with the safety is combined great diversity of opinion. What conclusion can be drawn from this discussion, which has evidently only just begun? None, at present, except that the need of adopting some plan by which the disastrous effect of social evils can be diminished is apparently admitted by all. The discussion then turns on the important questions of when, where and how. Where shall the child be instructed: at home, in the church or in the school? If the Los Angeles *Graphic* is correct and if 90 per cent. of American parents are dodging their duty, then one of two courses must be adopted. Either parents must be educated to a realization of their responsibility, or some other agency must take the place of the parent in education on this subject. If a substitute for the parent must be found, which shall it be, the church or the public school? If the church, to-day, using this term in its broadest and most comprehensive sense, were attracting or holding the greater part of our population, and if a majority of the children of public-school age were coming under the influence of the church, this might be considered as an ideal arrangement. But what are the facts? We have in most states compulsory school laws. We have not nor can we have any compulsory church laws. Only those who desire church relations come under religious influences. The most liberal estimate, accepting the figures of the churches themselves, shows that only 35,000,000 out of our total population of about a hundred million are directly connected with any religious organization of any character. The church as educational factor in this field, therefore, would have efficiency of only about 35 per cent. If the church will unde take this responsibility for those children whom it can reac by all means let it do so. But what of the 65 per cent. ou side its influence?

So much for the answer to the first question. As to tl second and third questions, when and how, these must l settled by our authorities in psychology and practical pedagogy. Public interest in the subject is unquestioned. To repeat, it is not a matter to be settled by heated controversy but by calm and judicious consideration. Above all, it is not a matter to be controlled by the "fringe of fanatics" which, as Theodore Roosevelt has aptly said, "hang on the outskirts of every reform movement." The question is not as yet one for dogmatic assertion but for careful consideration and suspended judgment.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular Little Rock, November 11-12. Sec., Dr. W. S. Stuart, Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

LOUISIANA: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 24 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

MISSISSIPPI: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: State House, Trenton, October 21-22. Sec., Dr. H. G. Norton, 429 E. State Street.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

Postgraduate Work in Medical Sciences

In order to meet the desire of physicians of New York City for opportunities to keep abreast of the advancing knowledge of the medical sciences, the directors of some of the leading laboratories in that city have cooperated to offer a series of postgraduate courses on their respective subjects. The institutions cooperating are: the College of Physicians and Surgeons of Columbia University, the University and Bellevue Hospital Medical College, the Cornell University Medical College and the Research Laboratory of the New York City Department of Health. The work is under the charge of Dr. Haven Emerson, with headquarters at 120 East Sixty-Second Street. The courses outlined consist of lectures, demonstrations and laboratory work in anatomy, physiology, chemistry, pharmacology and bacteriology.

The Federation of State Medical Boards

At a recent meeting of the Federation of State Medical Boards of the United States, Dr. James A. Duncan, formerly of the Ohio Board; Dr. Albert de Bey, formerly of the Iowa Board, and Dr. Charles A. Tisdale, formerly of the California Board, were nominated for Honorary Fellowship in the Federation.

The next annual session of the Federation was called to be held in the Francis I Room of the Congress Hotel, Chicago, Wednesday, February 25, 1914—on the day following the tenth annual conference of the Council on Medical Education.

Wisconsin June Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports the written examination held at Milwaukee, June 24-26, 1913. The number of subjects examined in was 20; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 96, including 2 osteopaths, of whom 89 passed, including 2 osteopaths, and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
[illegible]	(1912)	79
[illegible]niversity	(1906)	85
[illegible] and Surgeons, Chicago (1912) 85;	(1913)	[illegible]
[illegible] do.		
Northwestern University	(1912)	80
Chicago College of Medicine and Surgery (1911) 75; (1912) 87; (1913) 83.		
Rush Medical College (1912) 81, 84, 87;	(1913)	83
Bennett Medical College	(1911)	75
Indiana University	(1910)	75
Harvard Medical School	(1911)	81
College of Physicians and Surgeons, Baltimore	(1912)	80
Medico-Chirurgical College of Philadelphia	(1913)	81, 82
Marquette University (1912) 76, 76, 81, 87, 87; (1913) 75, 75, 75, 75, 76, 76, 76, 76, 76, 76, 77, 77, 78, 78, 78, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 85, 85, 85, 85, 85, 86, 87, 88.		
Queen's University, Ontario, Canada	(1913)	79
FAILED		
Chicago College of Medicine and Surgery	(1913)	1
Marquette University (1912) 2;	(1913)	3*

*Conditioned in Pathology.

Arizona July Report

Dr. John Wix Thomas, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, July 8-9, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 23, including 7 osteopaths, of whom 17 passed, including 6 osteopaths, and 6 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1913)	83.5
University of Illinois	(1912)	76.3
Rush Medical College (1901) 77.8;	(1910)	77.9
[illegible]	(1899)	80.7
[illegible]	(1912)	81.5
" "	(1903)	78.
" (1912) 77.9;	(1913)	83.2
[illegible]	(1898)	83.8
[illegible] Protestant College	(1911)	78.9
FAILED		
College of Physicians and Surgeons, Chicago	(1908)	72.2
Tulane University	(1905)	74.1
Ensworth Medical College	(1905)	71.6
New York University Medical College	(1898)	71.5
Western University of Pennsylvania	(1908)	63.7

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 8-10, 1913. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 89, all of whom passed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1912)	93.5
Coll. of P. and S., Chicago (1904) 88.7;	(1913)	92.1
Chicago College of Medicine and Surgery (1912) 83.9; (1913) 85.9, 86.9, 88.5, 91.2, 93.6.		
American College of Med. and Surgery, Chicago	(1905)	78.4
Rush Medical College (1892) 84.4;	(1911)	90.8
Northwestern University	(1912)	91.5
Hahnemann Med. College, Chicago (1912) 84.2;	(1913)	85.4
Indiana University (1913) 83.3, 85.5, 85.7, 85.7, 86, 86.2, 86.4, 86.5, 86.9, 87.1, 87.2, 87.2, 87.4, 87.6, 87.8, 87.8, 88, 88.1, 88.8, 88.8, 88.8, 88.9, 89.2, 89.2, 89.3, 89.3, 89.3, 89.5, 89.6, 89.7, 90, 90.3, 90.7, 91, 91.1, 91.3, 91.6, 91.7, 92, 92.2, 92.2, 92.7, 92.7, 92.9, 93.6, 93.7, 94.		
Kentucky University	(1898)	87.7
University of Louisville (1912) 87.1; (1913) 86.7, 87.1, 87.2, 88.3, 88.4, 88.8, 89.8, 90.6, 90.8, 91.3, 91.4, 91.8, 92.8.		
Harvard Medical School	(1913)	93.3
Columbia Univ., Coll. of P. & S., N. Y.	(1890)	88
Eclectic Medical College, Cincinnati	(1913)	90.9, 92.6
Medical College of Ohio	(1901)	82.6
University of Pennsylvania	(1913)	92.1
Hahnemann Med. Coll. and Hosp., Philadelphia	(1896)	85.2

LICENSED THROUGH RECIPROCITY

College	Grad. Year.	with Reciprocity
Women's Medical College, Chicago	(1893)	Colorado
Chicago College of Medicine and Surgery	(1906)	Illinois

Bennett Medical College	(1912)	Wisconsin
University of Louisville	(1909) (1911)	Kentucky
Hospital College of Medicine, Louisville	(1910)	Tennessee
Johns Hopkins University	(1907) Maryland; (1910)	Michigan
University of Michigan, Homeo. College	(1911)	Michigan
University of Michigan, Coll. of Medicine	(1911-12)	Michigan
Long Island College Hospital, N. Y.	(1907)	Illinois
Miami Medical College	(1897) (1911)	Ohio
University of Pennsylvania	(1898)	Penna.

Colorado July Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, July 1, 1913. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 34, of whom 33 passed and 1 failed. Twenty-one candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1912) 75.5, 81.4, 84.9, 89.7; (1913)	75, 75.2, 76.1, 78.5, 79.7, 80, 80.4, 81, 81.2, 81.2, 81.5, 82.1, 82.3, 84.3, 84.7, 85.6, 85.7, 86, 86.5, 86.7, 87.3, 87.5, 88.2, 88.2, 88.8, 90.6.
Hahnemann Med. College and Hospital, Chicago	(1913)	82.5
Central Medical College, Missouri	(1900)	75.3
Woman's Medical College of Pennsylvania	(1912)	82

FAILED

Kansas Medical College	(1900)*	

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year Grad.	State Licenses
Rush Medical College	(1888) 1907) (1911) Illinois; (1912)	Utah
Chicago Medical College	(1881)	Iowa
Northwestern University	(1893)	Iowa
American Medical Missionary College, Illinois	(1909)	Michigan
State University of Iowa, College of Medicine	(1907)	Iowa
Kentucky School of Medicine	(1893)	Illinois
Detroit College of Medicine	(1907)	Michigan
University of Minnesota	(1898)	Minnesota
Homeopathic Medical College, Missouri	(1890)	New York
Barnes Medical College	(1906) (1908) Illinois; (1909)	Arkansas
St. Louis University	(1908) Illinois; (1911)	Missouri
Columbia University, College of Phys. and Surgs., N. Y.	(1896)	New York.
University of Pennsylvania	(1910) Indiana; (1910)	Penna.
Chattanooga Medical College	(1901)	Alabama

*No grade given.

West Virginia July Report

Dr. S. L. Jepson, secretary of the West Virginia State Board of Health, reports the oral, written and practical examination, held at Charleston, July 14-16, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 45, including 3 osteopaths of whom 35 passed, including 3 osteopaths, and 10 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University, Washington, D. C.	(1912)	80
University of Louisville	*(1909) 82.4**; (1912) 85; (1913)	80, 80. 80.4, 81.9, 83.3, 86.4.
Kentucky University	(1905)	80.4
University of Maryland	(1913)	87.8
Baltimore Medical College	(1913)	86.1
College of P. and S., Baltimore	(1912) 86.7; (1913)	81.5. 82.2. 82.3, 82.9, 84.4, 85.1, 85.1.
[illegible] College	(1913)	83.1
[illegible]ege	(1913)	89.6
[illegible] Cincinnati	(1913)	80, 84.6
[illegible] College	(1913)	88.5
University of Pittsburgh	(1912) 86.8; (1913)	85.2
Medical College of Virginia	(1912) 83.3; (1913)	88.3
Univ. Coll. of Med., Richmond	(1913)	83.1, 84.1, 86.9

FAILED

National Medical University, Chicago	(1904)	75.3
Universi[illegible]	(1912) 75; (1913) 75.7,	77 7
Marylan[illegible]	(1912) 76.5; (1913)	75.5
Leonard [illegible]	(1911) 75.5; (1913)	77.3
Eclectic [illegible] incinnati	(1912)	71.3
Meharry [illegible]	(1907)	75.7

LICENSED THROUGH RECIPROCITY

College	Year. Grad.	Reciprocity with
American Medical Miss[illegible]nary College, Chicago	(1906)	Ohio
University of Marylan[illegible]	(1884)	Dist. Colum.
Missouri Medical Colle[illegible]	(1886)	Missouri
Eclectic Medical College, [illegible]ncinnati	(1912)	Ohio

* According to an officia[illegible]statement from the college named this candidate's name does not ap[illegible]ar among its alumni.

Book Notices

The Narcotic Drug Diseases and Allied Ailments. Pathology, Pathogenesis and Treatment. By George E. Pettey, M.D. Cloth. Price, $5 net. Pp. 516, with illustrations. Philadelphia: F. A. Davis Company, 1913.

For the most part the treatment of the narcotic drug diseases has until recently been in the hands of charlatans and quacks, who were more concerned in fleecing the victim than in curing his disease. Pettey has had long experience as a sanatorium physician in the treatment of drug addictions and is entitled to a hearing. He states that narcotic addictions belong to the field of internal medicine and not to neurology, but we are of the opinion that he who wishes to treat drug addictions successfully must be not only a good internist but also a neurologist. True to his convictions, Pettey lays great stress on the medical treatment and makes little mention of psychic treatment, which forms such a necessary part in the treatment of all forms of drug addiction. Praise is due him for giving short summaries of the physiologic action of the drugs he employs. Besides, his theoretical views on the whole are in conformity with modern medicine, though his exposition of the true pathology and pathogenesis leaves one unsatisfied. This volume will be useful to the general practitioner desirous of insight into the general subject of drug habits, about which so little has been written that is of value, and even the neurologist and sanatorium physician will gain many new points of view.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. *By Hugh Emmett Culbertson, of the Ohio and New York Bars. Cloth. Price, $3 net. Pp. 325. Philadelphia: Lea & Febiger, 1913.*

There has been no time perhaps when the doctor has been held so strictly to account for what he does as the present. Malpractice suits were never so numerous, and they are brought frequently on the most trivial pretext, such, for instance, as the alleged failure to give consent to some particular line of treatment, or even simply as an offset to get out of paying a just bill. Even in legitimate experimental work on animals the physician is frequently annoyed and subjected to such interfering supervision as to make progress almost impossible. In view of these facts, it behooves the physician to familiarize himself more fully with the laws governing his obligations and liabilities to his patients and to the community, as well as the duties and obligations of the patients and the community to him. Every physician should study this little work carefully and thus become familiar with the laws which apply directly to him and to his work. As is well known, ignorance of the law is no excuse. If one will acquaint himself with the contents of this book, he may save himself much trouble, which a busy, unselfish life is but too frequently innocently or unknowingly brought on.

Practice and Problem in Abdominal Surgery. By A. Ernest Maylard, B.S., Surgeon to the Victoria Infirmary, Glasgow. Cloth. Price, $3.25 net. Pp. 388, with 39 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

As the author states, this little work is not a treatise on the subject of abdominal surgery. It contains, however, an expression of the author's experience on a variety of subjects related to this great branch of surgery. He has had a wide experience during the entire period of what may be called modern abdominal surgery, and what he says is, therefore, the result of mature thought and judgment. He writes in an interesting and at times reminiscent manner, which is both entertaining and instructive.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M.D., assisted by E. G. C. Williams, M.D. With an Introduction by V. C. Vaughan, M.D., Professor of Hygiene and Physiologic Chemistry, University of Michigan. Second Edition. Cloth. Price, $2.50. Pp. 210, with 43 illustrations. St. Louis: C. V. Mosby Company, 1913.

That a second edition of this work has appeared so soon after the first is evidence of its popularity and worth to the general practitioner. The general worker must have laboratory facilities which permit of careful and exact work with the least expenditure of time and money. While many of the more complicated tests are denied to him, the busy practitioner must know the more common methods to be followed, the equipment necessary and the possible pitfalls into which he may grope in perfecting the tests at hand. To point out these various phases is the province of this work. Many changes and insertions have been made; among the additions are Bass and Watkins' rapid Widal method, which may be performed at the bedside in a few minutes; the sulphosalicylic acid test for urinary albumin, and the Hermann-Perutz serum test for syphilis. The last-named is a valuable addition as it enables the general man to study his suspected syphilitic cases without resort to the complicated Wassermann test, which he is not in a position to perform. This work should find a wide field of usefulness.

DIE BIOLOGISCHEN GRUNDLAGEN DER SEKUNDÄREN GESCHLECHTSCHARAKTERE. Von Dr. Julius Tandler, Professor der Anatomie, und Dr. Siegfried Grosz, Privatdozent für Dermatologie und Syphilidologie an der Wiener Universität. Paper. Price, 8 marks. Pp. 169, with 23 illustrations. Berlin: Julius Springer, 1913.

This interesting monograph attempts to explain the development of secondary sexual characteristics, anatomically speaking, by the harmonious cooperation of the several glands with internal secretions. The work itself is not a mere dissertation on the subject, but embodies the experimental labors, supplemented by clinical observation, of two authors well known in scientific medicine. Those interested in the new theories on the internal secretions will find much of value in the concise account of the authors on castration experimentally performed on the lower animals, as well as on castration as seen in man. Eunuchoidism, precocious sexual development, puberty, pregnancy, climacterium, hermaphrodism, the intermediate cells, all receive adequate consideration. The illustrations, though not numerous, are clear and really illustrative of the subject matter. The bibliography is up to date in every respect.

PATHFINDERS IN MEDICINE. By Victor Robinson. With a Letter from Ernest Haeckel and an Introduction by Abraham Jacobi. Cloth. Price, $2.50. Pp. 317, with illustrations. New York: Medical Review of Reviews, 1912.

This book is a collection of essays or sketches previously published in various periodicals. The "pathfinders" dealt with are: Galen, Aretaeus, Paracelsus, Servetus, Vesalius, Paré, Scheele, Cavendish, Hunter, Jenner, Laennec, Simpson, Semmelweis, Schleiden, Schwann and Darwin. The frontispiece is a representation in colors of the Semmelweis monument in Budapest, and there is an illustration of each of the persons whose life and work are sketched. As Abraham Jacobi says in his introduction, "the author's facts as related are absolutely correct," the style is animated, and to many the reading of these sketches should prove pleasant and profitable.

SURGERY OF THE LUNG. By C. Garrè, Professor of Surgery at the University of Bonn, and H. Quincke. Second Edition. Translated by David M. Barcroft, M.D. Cloth. Price, $4 net. Pp. 271, with 116 illustrations. New York: William Wood & Co., 1913.

This is a translation from the German, the original of which was reviewed recently in these columns. (Feb. 8, 1913, p. 471). The translation follows the original almost literally without additions or comments, and English readers have an excellent translation of the latest and perhaps best exposition of this newer field of surgery. All of the original plates and illustrations have been retained, as well as the bibliographies. The translation has a good index, which is wanting in the original.

THE REDUCTION OF DOMESTIC FLIES. By Edward Halford Ross, M.R.C.S., L.R.C.P. Cloth. Price, $1.50 net. Pp. 103, with illustrations. Philadelphia: J. B. Lippincott Company, 1913.

The purpose of this book is to describe the nature of the house-fly—its life, its danger to human beings, and the part it plays in causing sickness, and to show how it may be best reduced in numbers. Beyond reasonable doubt, flies are carriers of disease germs and possibly important factors in the dissemination of cholera infantum, typhoid fever and other maladies. The reduction, if extermination is not feasible, becomes of sanitary importance. Until the public understands that the house-fly is a dangerous pest which can be prevented, little or nothing will be done to institute prevention. In bringing about the desired reduction the base of operation is the destruction of breeding-places, chiefly of manure-heaps, garbage, open privies, etc. More than 500 million offspring may be produced by one female in one month. Destruction of the insect in the egg and larva stages, before the flying adult has developed, is the keynote of the author's suggestions.

Medicolegal

Accepting Prior Diagnosis of Another Physician and Treating a Fracture as a Dislocation—Delaying Use of Roentgen Ray and Anesthetics—Discharge of Physician Right after Correct Diagnosis—Principles of Law Governing Malpractice Cases—Standards

(McGraw vs. Kerr (Colo.), 128 Pac. R. 870)

The Court of Appeals of Colorado reverses a judgment for $800 given the plaintiff Kerr for alleged malpractice by the defendant McGraw. The court says that the evidence showed that the plaintiff, a boy of 5 years of age, fell from a horse and fractured his right arm. A physician was called, who, within an hour of the time of the accident, examined the arm, pronounced the injury a dislocation of the shoulder, bandaged the arm, bound it to the body, and, for lack of facilities at that place, advised that the plaintiff be taken to Denver for treatment. The next day the defendant was called, heard the history of the case, and was told by the boy's father of the diagnosis made by the other physician, and that he claimed to have reduced the dislocation, or, as the father expressed it, "pulled it back into place." The defendant examined the arm visually, and by feeling and manipulation found it swollen and painful; stated that it would be better to let the boy get over the shock before anything further was done, and that he would reduce the swelling and then could determine positively what the trouble was: recommended a Roentgen ray, but said he would not put the father to that expense until he deemed it necessary. The arm was rebandaged and complete rest and quiet directed. The defendant examined the arm daily, feeling of and manipulating it, and on several occasions applied electricity for treating the nerves or for the purpose of diagnosis. The swelling continued for some days—about one week according to testimony on behalf of the plaintiff—and longer according to the defendant. About two weeks after the accident the defendant discovered the fracture and immediatly ordered a Roentgen ray picture of the parts, which was taken the same day by a specialist in such work, and verified the defendant's diagnosis, showing that the ends of the fractured bone were not in exact apposition; only about three-fourths of the ends butting against each other. There was no lapping of the parts longitudinally. The plaintiff's father was then told the condition of the arm by both physicians, that they had detected crepitus, and both advised that the fracture be reduced under anesthetics, and that, if found necessary, a silver wire be inserted to hold the pieces in place. The fracture was of the surgical neck of the humerus about 1¼ inches from the rim or head of that bone. The defendant arranged to take the plaintiff next day to a hospital for an operation which it was understood he was to perform, but that night or early next morning he was discharged by the plaintiff's father and had no further connection with the case.

The plaintiff alleged that the defendant, being called to set a fractured arm, diagnosed the case as a dislocation of the shoulder, and treated it accordingly. The defendant alleged that he was called to treat a recognized case of dislocation, and to alleviate the suffering and condition arising therefrom.

The testimony of both the plaintiff and the defendant tended to support the latter view, and the defendant might have so understood his employment, as it was undisputed that he was notified on entering the case that the injury had been diagnosed by a physician as a dislocation, and the dislocation reduced; and it was admitted that for a time the defendant tentatively accepted such former diagnosis and treated the arm accordingly. The evidence failed to show that in the diagnosis defendant did not use the means and method ordinarily and usually used by other physicians. It was true, he did not at first make use of the Roentgen ray or of anesthetics. Both of these means were discussed by the defendant with the father of the plaintiff, and with his consent, or at least without objection, deferred for a time, and for apparently good reason. No evidence was offered to show that under the conditions it was usual or customary at that time and place, among physicians of the defendant's school, or immediately necessary to either use the Roentgen ray or resort to anesthetics in diagnosis, or that failure to do either constitute want of care or skill. By proceeding on a diagnosis not made by him, but accepted, the treatment by daily rotation or manipulation of the arm probably caused some degree of pain and suffering in excess of what the plaintiff would have endured if the fracture had been discovered sooner. But that treatment, in all probability, prevented a union of the parts and resulted in the nonunion as found by the defendant at the time he discovered the fracture. In view of the conditions, as stated, under which the defendant took charge of the case, there is reason for believing and holding that the failure of the defendant to use the Roentgen ray, or anesthetics, as a means of diagnosis, if error, was a mere mistake or error of judgment. The court is unable to see that such error, if error it was, was so gross as to be inconsistent with that degree of skill which it is the duty of a physician to possess.

The facts of this case differed from those of any reported case that has come to the court's attention. The court has read many in which the physician was held liable for improper diagnosis resulting in injury, but no case in which, although an incorrect diagnosis, or no diagnosis at all for a time was shown, it was followed by a correct diagnosis immediately after which the physician was discharged and his advice disregarded. This difference in facts marked a vital distinction in this case. It was clear that if the union of the parts which thereafter became permanent, and of which the plaintiff complained, did not exist at and prior to the time of the defendant's discharge, the defendant could not be held liable.

As the court views the case on the record, the only evidence of damages to sustain a verdict for any amount would be that which tended to show that the plaintiff suffered greater pain by reason of the manipulation of the arm while considering the injury a dislocation than he would have suffered had proper diagnosis been theretofore made. But the court is not satisfied that the jury intended to find, or might reasonably have found, a verdict in the amount herein returned for that element alone of the damage claimed. The verdict was so manifestly against the weight of the evidence as to appear to be the result of bias or prejudice, misconception of the evidence or the legal effect thereof, or of nondirection or misdirection as to the law.

In the absence of a special contract otherwise providing, a physician and surgeon employed to treat an injury impliedly contracts that he possesses that reasonable degree of learning and skill ordinarily possessed by other of his profession, and that he will use reasonable and ordinary care and diligence in the exercise of his skill and the application of his knowledge to accomplish the purpose for which he is employed, and that he will use his best judgment in the exercise of his skill in deciding on the nature of the injury and the best mode of treatment. He does not undertake to warrant a cure and is not responsible for want of success, unless that want results from failure to exercise ordinary care, or from his want of ordinary skill. If he possesses ordinary skill and exercises ordinary care in applying it, he is not responsible for mistake of judgment.

The skilfulness of a physician in diagnosis and treatment should be tested by the recognized rules of his own school, and must be determined by resort to the testimony and opinion of experts, not only as to the correct diagnosis, but also as to whether the defendant exercised ordinary care and skill in examining the case and applying the remedies, such opinion to be based on the facts in evidence. The fact that an injured limb is defective after treatment is not evidence of negligence on the part of the physician treating it.

A jury has no right to ignore testimony that has not been discredited and form independent conclusions on matters which require proof beyond their conjectures or opinions. Both from reason and authority it is clear that the result obtained from an operation, or treatment, in a case of medicine or surgery is ordinarily neither prima facie nor any evidence of negligence. A surgeon may be assiduous, painstaking and careful to the last degree, using all the recognized means at his command, both ordinary and extraordinary, and still fail. In such case it is manifest that failure is neither the result nor evidence of neglect.

A patient is bound to submit to such treatment as his surgeon prescribes, provided the treatment be such as a surgeon of ordinary skill would adopt or sanction. If he will not, his neglect is his own wrong or mistake for which he has no right to hold his surgeon responsible.

Negligence on the part of a physician consists in his doing something which he should not have done, or in omitting to do something which he should have done. By allowing the jury to consider any imperfect position of the fragments of the bone which had been broken, as evidence of negligence, the defendant was not tried for what he did or omitted to do, but by the criterion of results. If the jury could regard an imperfect position of the bone as evidence on the question of the defendant's exercise of care, then the doctrine of *res ipsa loquitur*, or the matter speaks for itself, applied; but the maxim *res ipsa loquitur* has no place nor application in a case like this, and the jury should have been so advised.

The defendant requested an instruction to the effect that. in considering whether the defendant in his diagnosis, care and treatment of the plaintiff's injured arm exercised ordinary care and skill, the jury could not set up a standard of its own, but must be guided in that regard solely by the testimony of physicians; and that, if they were unable to determine from the testimony of physicians what constituted ordinary care and skill under the circumstances of this case, then there was a failure of proof on the only standard for their guidance, and the evidence would be insufficient to warrant any verdict for the plaintiff. The authorities are practically uniform in holding, and counsel for the plaintiff admitted, that as to what is or is not proper practice in examination and treatment, or the usual practice and treatment, is a question for experts, and can be established only by their testimony, but counsel attempted to draw a distinction between the character of testimony necessary to establish a standard of proper treatment, and a standard of what constitutes ordinary care and skill. The court perceives no difference. If no standard was established by the testimony of physicians, then the jury had no standard. This does not militate against the right of the jury to decide between conflicting testimony of different physicians or experts on the question of a standard; it only goes to the extent that, if in doubt on any matter necessary to enable the jury to say that a standard has been fixed for its guidance by the testimony of such qualified witnesses, then it cannot from other and incompetent evidence, or without evidence, raise a standard. The court thinks that refusal to give this instruction, and the giving of an instruction by which the jury was permitted to find such standard from all of the testimony, both competent and incompetent as to that question, constituted error.

The fact that the defendant was discharged immediately after he had discovered the fracture and before he had set or attempted to set the arm was disclosed by the plaintiff's testimony in chief as well as by that of the defendant. Therefore it became necessary for the plaintiff to establish as an affirmative part of his case, by a preponderance of the evidence, that the condition of which he complained existed at the time of the discharge, and that permanent injury would not have been averted by compliance with the defendant's directions. The instruction given changed the burden of proof and placed it on the defendant, requiring him to establish by a preponderance of the evidence that such condition did not exist; that union had not taken place to such an extent as to make it impracticable or unreasonable for the plaintiff to comply with his advice that the fracture be reduced after that lapse of time. In that respect the giving of the instruction was error.

Silence and Failure to Act Not Evidence Against Physician

(Shelton vs. Hacclip (Ala.), 60 So. R. 471)

The Court of Appeals of Alabama reverses, on the second appeal in this case, a judgment rendered against the appellant (defendant) Shelton for alleged malpractice. The court says that the date of the alleged malpractice was August 10, 1903, when, as the defendant was passing the residence of the plaintiff's mother, he was called in by her in consequence of her having telephoned for a Dr. Murray, who had recently been attending on the plaintiff, and finding that he was not at his office, and that the defendant was not at that time the physician who had been treating the plaintiff, then a young child, for the ailment from which she had been suffering. The testimony for the plaintiff tended to show that the defendant was at the house again the next morning, and then saw the child's eye in the condition in which Dr. Murray observed it during the same day when he declared that it was out. The defendant's testimony was to the effect that he made only the one visit in August, when he prescribed for the eye, and that the next time he was called back there to see the child was in January, 1904. He did not remember for what ailment he prescribed for her on that visit, but there was no suggestion in the evidence that the calling in of the defendant on that occasion had any reference to the plaintiff's eye. The defendant having, on his cross-examination, testified that it was on that occasion that he first saw that the child's eye was out, he was required, over objections duly interposed in his behalf, to answer the questions: "You had made no inquiry about it before that?" "You made no inquiries at that time?" "You made no examination of the eye?"

The court cannot conceive that in asking these questions there could have been any other purpose than to make the defendant's answers to them, especially if they were answered in the negative, as they were, the basis of inferences or implications unfavorable to him. In other words, the effect of overruling the objections to the questions was to permit the facts that the defendant had made no inquiry about the child's eye after he prescribed for it in August, 1903, or when he was called in to treat her for some other ailment in January, 1904, and that he made no examination of the eye on that occasion to be put forward as evidences of implied admissions by him of some culpability on his part in the treatment of the eye for which he had prescribed.

The court is not of opinion that one's silence or failure to act can be made evidence against him unless the attending circumstances were such as to call for some expression or action by him in reference to the matter about which he then said or did nothing. It is a familiar rule that the fact that one was silent on a given occasion is not admissible in evidence against him unless the occasion was one calling for a statement or expression from him about the matter as to which his silence is sought to be given the effect of an implied admission. The reason underlying that rule also supports the conclusion that the fact of one's failure to do a certain thing should not be provable against him unless accompanied by evidence that there was some occasion for him to do that thing.

There was no evidence tending to show that, between the dates of the defendant's treatment of the child's eye on the occasion of his visit in August and his professional visit to her in the following January, anything had happened to which the defendant was a party or with which he was in any way connected which was calculated to elicit from him an inquiry as to the child's eye. Nor was there any evidence of anything being said or done on the occasion of his later visit to call for an inquiry by him about the child's eye or his examination of it. His failure, under these circumstances, to make such inquiries or examination could prove nothing for or against him bearing on the issue in this case, whether he saw the eye in August after it was out, as the plaintiff's evidence tended to prove, or first saw that it was out when he was called in to treat the child for some other ailment five months later. Evidence as to such failure could shed no light on the inquiry in this case as to whether the defendant was so in fault in the treatment he had prescribed for the child's eye as to render him liable in damages for the loss of it. His mere failure to make such inquiries or examination could have no legitimate tendency to prove that he was negligent or unskilful in the treatment of the eye or to indicate an implied admission by him of culpability in that regard. The conclusion follows that the court was in error in overruling the objections to the questions above set out, and this court is further of opinion that the error was a distinctly prejudicial one, as the evidence so improperly admitted might well be made the basis of a plausible appeal to the jury to give the defendant's subsequent silence and inaction a significance and an incriminating effect to which it was not entitled.

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Mississippi Valley Medical Association, New Orleans, Oct. 23-25.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Virginia Medical Society, Lynchburg, Oct. 21-24.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Third Annual Session, Sept. 22-26, 1913

Section on Surgery, September 23-25

The Section opened September 23 in the Bellevue Stratford. Dr. G. W. Guthrie, Wilkes-Barre, called the meeting to order at 2 p. m. The Chairman, Dr. John B. Lowman, Johnstown, delivered his address and then took the chair.

Treatment of Fractures

Dr. John B. Lowman, Johnstown: Each fracture is a study in itself and the simpler and more comfortably it can be dressed the better result will be obtained. The splint must fit the fracture, not the fracture the splint. In operation on fractures no instrument which has touched the hand nor the hand itself should go into the wound. In compound fracture my practice is to remove loose and disintegrated tissue, paint the wound with tincture of iodin and put on a 5 per cent. phenol dressing and a splint and not attempt operation until danger of infection is past. With an experience of over 150 operations I am an advocate of this method when there is interposition of muscle, absence of crepitus, when reduction is impossible and when the fracture is near a joint.

The Mimicry of Diseases of the Upper Abdomen by Omental Adhesions

Dr. G. P. Muller, Philadelphia: No substance as yet known will entirely prevent abdominal adhesions after operation. Probably simple incision of the abdominal wall causes slight adhesions. There is marked tendency of the omental edge to attach itself to raw surfaces of the peritoneum. Later larger surfaces become adherent. If this adhesion occurs at points well beyond the normal site, a drag on the stomach, colon or gall-bladder occurs and symptoms are produced which resemble ulcer, gall-stones or other disease of the upper abdomen. We should be cautious in diagnosing ulcer or gall-stones in a patient previously operated on unless we have eliminated the possibility of omental adhesion.

DISCUSSION

Dr. John B. Deaver, Philadelphia: I rely as much on a tender scar and rigidity surrounding the tender scar as anything else in making the diagnosis of adhesions. I frequently see patients return after gall-stone operations, not with the typical gall-stone colic, but with pain resembling it and with the same set of symptoms as before operation. I do not know any way of preventing these adhesions.

Dr. George P. Muller, Philadelphia: If a second operation has to be done I think that it is well to remove most of the omentum. Otherwise it is practically certain to adhere at the former point.

Puerperal Sepsis and the Present Methods of Treatment

Dr. E. E. Montgomery, Philadelphia: In the first place a careful differentiation from other forms of infection should be made, and the type, whether sapremic or septic, determined. In treatment, measures to conserve vitality, promote elimination and maintain nutrition should be employed. Medication should be given as much as possible hypodermically or by rectum. Elimination is most favored by continuous instillation of salt solution or water. The Fowler position promotes drainage from the vagina. Ice-bags to the abdomen lessen the pain and inflammation. Pus accumulations require, of course, surgical intervention. The curet should not be used.

DISCUSSION

Dr. Richard C. Norris, Philadelphia: My experience has taught me that the curet in miscarriages or following miscarriages is a prophylactic measure of treatment. We are apt to think that the uterus will take care of itself, but it is my routine practice with patients brought into my wards to take it for granted that there is something in the uterus that Nature has not taken care of, a nidus of infection. The intra-uterine douche after miscarriage has been productive only of good in my cases. After definite labor at term I never use the intra-uterine curet.

Fracture of the Surgical Neck of the Humerus

Dr. G. G. Ross, Philadelphia: Fractures of the surgical neck of the humerus often present great difficulties in treatment. Luxation of the head of the humerus is the most troublesome complication. It occurred in three out of eighty-four cases at the university and in five out of sixty cases at the German Hospital. Operation except in compound fractures is very rarely needed.

DISCUSSION

Dr. G. G. Davis, Philadelphia: The laity is becoming still more prone to malpractice suits, and in injuries about the shoulder I think it is almost impossible to make correct diagnosis by physical methods alone. Therefore, I think it absolutely essential that all injuries or fractures around the shoulder-joint should be roentgenographed. The conservative treatment of fractures in the neighborhood of the shoulder has proved to be better and more convenient than the operative means.

The Modern Diagnosis of Tuberculosis of the Kidney

Dr. B. A. Thomas, Philadelphia: Renal tuberculosis commonly masquerades under remote, unrecognized or misinterpreted urinary symptoms. Early diagnosis is necessary if it is desired to obtain the high percentage of cures possible by nephrectomy. The disease almost invariably arises from infection from the blood; rarely does it ascend from the bladder. In 80 per cent. of cases it is primary in one kidney only, but in twenty-four cases observed by me it had become bilateral at the time of operation. The use of tuberculin diagnostically is valueless. Cystoscopy and particularly chromoureteroscopy, with the employment of indigocarmin, has been the procedure of merit. Not a single patient nephrectomized after the use of indigocarmin has since died. Pyelography should seldom, if ever, be used in this disease.

Diagnostic Methods Applicable to Renal and Ureteral Lesions

Dr. G. M. Laws, Philadelphia: In the diagnosis of kidney lesions the history, physical examination, urinalysis and Roentgen rays are of importance in guiding the surgeon to a proper instrumental examination. Palpation may at once locate the affected organ. The Roentgen-ray examination of the kidneys and ureters has proved so valuable that it is used routinely. At times the roentgenogram will be negative in case of large calculus. That pyelography is an extremely valuable diagnostic method is undeniable. The experience of many clinics shows hundreds of cases that could not be diagnosed by any other method. Nearly every lesion of surgical importance causes some deviation from the normal outline of the pelvis or ureter. Indigocarmin and phenolsulphonephthalein are the most popular agents for use in functional tests. The practical objection to the latter is the necessity of using the ureteral catheter.

DISCUSSION ON RENAL DISEASE

Dr. J. E. Sweet, Philadelphia: Ascending infection of the kidney takes place, not through the lumen of the ureter, but solely through the lymphatic system.

Dr. John L. Laird, Philadelphia: If we depend on indigocarmin, we must rule out all obstruction in the ureter. We cannot do that without catheterization of the ureter. Besides, in early diagnosis, when diagnosis is most important, indigocarmin is often not delayed in its excretion. It has been stated and proved that one-third of the kidney substance must be involved before there is any delay in secretion of indigocarmin.

Dr. A. A. Uhle, Philadelphia: We cannot obtain a positive diagnosis of tuberculosis without positive guinea-pig inoculation. What we rely on is guinea-pig inoculation. After the diagnosis of a bad kidney we want to know, if the kidney is removed, whether or not the patient is going to live. I am much in favor of indigocarmin, but one must be very careful to choose the proper drug. There are two or three products on the market which may so mislead the operator that he might take out the kidney which is not diseased. Our results with tuberculin in kidney conditions have shown us that we secure relief, but we cannot depend on it for cure.

Ludwig's Angina, or Submaxillary Cellulitis with Extension to the Floor of the Mouth and Pharynx

Dr. T. Turner Thomas, Philadelphia: Ludwig's angina is a submaxillary cellulitis which extends to the larynx by way of the floor of the mouth and pharynx. Its greatest danger lies in the fact that the internal invasion is overlooked until it is too late or is not recognized at all. The recorded mortality is about 40 per cent. If the possibility of this complication in every case of submaxillary cellulitis were generally appreciated and the submaxillary focus were drained thoroughly as soon as the swelling under the tongue appeared, the mortality would be much reduced. If the incision was made before the internal invasion occurred, the results would be still better. The sublingual phlegmon should be the last signal for operation. Pus or dyspnea should never be waited for. Dyspnea develops too late and is too often absent in the stage when there is yet hope of saving the patient. While the condition which Ludwig described is a submaxillary cellulitis with secondary internal invasion, it should be borne in mind that the infection may start under the tongue or in the walls of the pharynx, when edema of the larynx will develop the more quickly and insidiously because the focus of infection is more concealed. Even in these cases the focus may sometimes be found and attacked successfully.

DISCUSSION

Dr. Ralph Butler, Philadelphia: We must forestall the danger rather than wait for fluctuation, dyspnea and other danger-signals. With early free drainage the mortality can probably be reduced, although some of the fulminating cases cannot be saved by any known treatment. The cases reported do not sufficiently emphasize the danger and rapidity of this affection. Death may occur within a day after the first symptoms are seen. The temperature often does not go above 101.

Our Present Conception of "Arthritis Deformans"

Dr. David Silver, Pittsburgh: According to our present conception of arthritis deformans, infection is the exciting cause in a very large proportion of the cases, whether in all remains to be proved. The source is usually focal and the infection is no doubt of various types, although streptococcal infection would appear to be the most common. Metabolic disturbances act as most important contributory causes, but that they alone can produce the arthritis cannot yet be definitely shown. To be emphasized is the fact that the problem is a complex one: there are numerous predisposing factors, while once the disease is established many causes become active in perpetuating it, and in some instances these secondary causes become so prominent as to appear of primary importance. Diagnosis is not a "one-man job."

DISCUSSION

Dr. G. G. Davis, Philadelphia: In a large number of cases we will fail to find the improvement expected on removal of the infectious element. In some cases the metabolic disturbance seems absolutely unassociated with the infectious element. Only by persistent work and study shall we solve the difficult problems connected with arthritis deformans.

Dr. George E. Pfahler, Philadelphia: I would call attention to the teeth as a source of infection in this condition often overlooked. Repeatedly these patients have come to me for roentgenoscopy of their joints and at my own initiative I have made studies of the teeth. Often with infection of the teeth the patients have no local symptoms.

Dr D. Silver: I agree as to the importance of pyorrhea, but this and the other common sources of infection may be secondary. In one case of infection of spine, hips and knees, the diseased tonsils were removed, with a large pocket of pus, but the patient did not get well. We must examine cases with regard to every point of infection.

Medical Ethics in Relation to Roentgenology

Dr. David R. Bowen, Philadelphia: The practicing physician should know enough about the Roentgen ray to tell when and when not it should be used. Patients should not be advised as to probable fee without due knowledge of fact and should not be encouraged to expect "pictures." Fee is for consultation and not for picture-making. The obligation is on roentgenologists and hospitals to furnish a high grade of service regardless of size of fee. The ownership of all roentgenograms and prints rests with the roentgenologist.

DISCUSSION

Dr. John H. Gibbon, Philadelphia: In stomach and intestinal work the Roentgen ray is invaluable. The matter must be in the hands of an experienced man; poor roentgenograms do more harm than to have none. If roentgenology is taught in medical schools I would approve the plan outlined by Dr. Bowen, which includes a warning of the attending dangers.

Dr. George E. Pfahler, Philadelphia: I believe we should teach medical students Roentgen-ray anatomy and Roentgen-ray pathology and give them the principles on which the subject is based both in diagnosis and treatment. I make no attempt to teach students how to do the work, but tell them that if they want to become roentgenologists they must take up the work, giving special attention to it. After fourteen years' hard study I realize how little I know of the matter.

Recognition and Treatment of Exophthalmic Goiter

Dr. Henry S. Plummer, Rochester, Minn.: The diagnosis of this disease is based on hyperplasia and change of form of the thyroid. The gland is enlarged, indurated in such a way as to be demonstrable in 60 per cent. of cases. A diffuse bruit is discernible in almost every case. Exophthalmic goiter must be distinguished from other thyrotoxic states. In exophthalmic goiter there are three toxic elements: one affecting the nervous system, the second the circulation and the third producing hypertrophy. The onset is insidious. The administration of iodin may cause cardiac symptoms in cases in which it had not previously been present. The simple form of goiter may be changed into the exophthalmic form. The constant features of the disease are mental irritation and depression. In persons over thirty-five years of age goiter, tremor, exophthalmia and tachycardia are not sufficient for the diagnosis of exophthalmic goiter. The toxic symptoms result from excessive and perverted thyroid secretion. The severity of the disease varies with the weight of the gland. The treatment consists in elimination of the cause, reduction of the hypertrophy and neutralization of the toxin. As we do not know the cause of the disease nothing can be done in that direction. Little can be expected, except from reduction of the functional activity of the gland by its partial destruction. Operation reduces the toxin produced in ratio to the amount of the gland removed. Alteration does not alter the perversion, nor does it alter changes in the organs which have already occurred.

DISCUSSION

Dr. Lawrence Litchfield, Pittsburgh: As in case of Banti's disease, which is probably due to a morbid influence of the spleen on other organs of the body, removal of the spleen will cure the disease. So it may be that the beneficial effect of thyroidectomy is due to the removal of the gland which is the cause of a perversion of secretion.

Dr. John A. Lichty, Pittsburgh: I should like to ask why hyperplasia of the gland is considered necessary for a diagnosis of thyrotoxicosis. I have observed cases of thyroid intoxication in which no hyperplasia of the gland could be determined.

Dr. Henry S. Plummer: Exophthalmic goiter never occurs without hyperplasia of the gland. In rare instances there are non-hyperplastic cases which resemble very closely exophthalmic goiter, but they are not that disease.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, LXVIII, No. 429, pp. 401-616

1 Pregnancy Complicated by Appendicitis. C. E. Paddock, Chicago.
2 Ovarian Neoplasms, Complicating Pregnancy and Labor. R. C. Norris, Philadelphia.
3 Fibroid Tumors Complicating Pregnancy and Labor. F. W. Lynch, Chicago.
4 *Abderhalden's Test of Pregnancy. N. S. Heaney and C. H. Davis, Chicago.
5 *Puerperal Infection. T. J. Watkins, Chicago.
6 Treatment of Puerperal Infection. C. B. Ingraham, Denver.
7 Pelvic Floor, Rectocele, Cystocele and Prolapsus Uteri, Etiology, Mechanism and Behavior. A. B. Keyes, Cleveland.
8 Mesenteric Cysts: Clinical and Pathologic Reports. C. G. Child, L. W. Strong and E. Schwartz, New York.
9 Tuberculosis of Kidney. G. Kapsammer, Vienna.

4. **Abderhalden's Test for Pregnancy.**—Thinking that possibly the ferment action of the blood might not be specific to placental albumin, one of the authors began to test the activity of the serum of pregnant and non-pregnant humans to ordinary peptones. Twenty c.c. of 2 per cent. sterilized aqueous solution of Witte peptone was mixed with 10 c.c. of blood-serum in a sterile flask. Of this mixture 10 c.c. was withdrawn immediately and titrated for amino-acids according to the formaldehyd method of Sorensen-Ronchesi. After incubation of the remaining portion for twenty-four hours the titration was again performed. The difference in titer represents in terms of tenth-normal KOH the increase of amino-acids as the result of digestion. Nine pregnant and three non-pregnant women were examined. The peptolytic activity of the blood varied in intensity, but the variation could not be brought into correlation with the gravid or non-gravid state of the patient, but depended on factors not ascertained. In four other cases, instead of peptone solution placenta was desiccated and powdered and a 1 to 200 suspension was made

and tests made in the same manner as already described. From these four cases no proteolytic activity could be demonstrated by an estimation of the amino-acids. If digestion of the placenta occurred it was either not carried to the amino-acid stage, or was not measurable by the method used. The few experiments as performed did not yield promising results so that this part of the work was abandoned.

When the use of ninhydrin and diffusion shells was advocated the authors took up the test. They used the dialysis tubes No. 579, 16 mm. in diameter. Seidenpeptone not being procurable, they used Witte peptone and normal horse-serum to test their tubes. The tests were performed with the strictest adherence to each new elaboration of the test as discovered by Abderhalden from time to time. Full regard to asepsis was paid and the facilities for work were satisfactory in every way. By the technic in which the placenta was not reboiled and retested just prior to the test, eleven patients were examined, of whom four were pregnant and seven non-pregnant. Each of the four pregnant women gave a positive reaction. Of the seven non-pregnant individuals only two failed to react. Of the five who reacted positively two were males with syphilis; one woman had been operated on one week earlier for tuberculous peritonitis, the uterus and appendages having been removed one year previously; one woman clinically non-pregnant but who had not menstruated for months, suffered from multiple ulcers of the rectum, probably syphilitic. Since rendering the placenta free of reacting substances before testing, they have tested seventeen individuals. Of five women who were not pregnant, one reacted positively. This patient had periods of amenorrhea from some cause not ascertainable. Of seven pregnant women from all periods, two reacted negatively in the sixth and fourteenth weeks, respectively, who subsequently developed positive signs of pregnancy. The women from the fourteenth week subsequently gave a second negative test. Of five puerperal women, two who had been delivered thirteen and twenty days prior to the test reacted negatively, the other three women were from the earlier puerperium and reacted positively. The dialysis tubes used in the adverse tests had previously and subsequently given positive reactions. Positive tests occurring when not expected can be explained on the basis of an error in technic, while a negative test is not so easily explained.

A review of the literature and an experience with the test, together with the use of other means of testing the digestive activity of the blood, leads the authors to question the specificity of the test of Abderhalden; though, since the need of such a reaction is great they urge that the test should be further tried, and its results reported accurately.

5. **Puerperal Infection.**—Watkins says that inasmuch as the disease is essentially a systemic infection, the important pathology is the general pathology of infection and immunity. The pathology in the pelvis in puerperal infection is of secondary importance when considered from a practical viewpoint. The bacteriologic examination of vaginal and uterine secretions is of relatively small value, as the results are often uncertain and misleading. Blood-cultures are the only means at present of accurate diagnosis of the variety of infection. As the disease is chiefly systemic, the treatment should be essentially general. The important part of the treatment of puerperal infection is the use of remedies to increase the body resistance, and the abandonment of measures that interfere with the development of immunizing substances. The outdoor treatment in Watkins' opinion is the most valuable remedy known as yet in the treatment of puerperal infection. The beneficial effects of that treatment in his cases have been very noticeable, especially as regards improvement in appetite, sleep, temperature and pulse. Two quarts is the minimum amount of fluid which is given to promote elimination. Stimulants are not used, as rest, not action, is desired. Anodynes or hypnotics are given in moderation to relieve pain and to procure a minimum amount of six hours' sleep. Watkins believes that fresh air and sun baths are good substitutes for tonics. An ice-bag is kept over the lower part of the abdomen during the acute period of the disease, and the head of the bed is elevated to promote drainage.

As the pathology in the pelvis is of secondary importance, the local treatment is of relatively little value. Watkins believes that much of the local treatment that physicians still use quite generally is productive of much harm and is of little benefit. Vaginal and intra-uterine douches and medicinal applications are harmful, meddlesome and useless procedures that are of historic interest only.

As to whether all products of conception be forcibly removed from the infected uterus, Watkins says, continues to be a debatable question. Never to explore or empty the uterus except for hemorrhage seems to Watkins to be consistent with the modern interpretation of infection and immunity. The infected uterus if left alone will soon spontaneously expel any retained products of conception. There is no evidence that the presence of such tissue increases the growth or virulence of the more dangerous bacteria. Emptying of the uterus removes most of the bacteria of decomposition, but they are not of much importance as regards morbidity or mortality. In the so-called saprophytic cases one can never exclude with certainty the presence of pathogenic bacteria. It is not an uncommon observation to see a normal temperature with retained decomposing tissue in the uterus. Curetting with the finger or instrument produces raw surfaces, disseminates the infection, may dislodge septic thrombi and thus produce embolic infections and pelvic inflammatory exudates. In case of hemorrhage, which means separation of the decidua or placenta, a gauze pack in the vagina or in the lower uterine segment will stop the bleeding and hasten spontaneous expulsion of the retained tissue. The gauze thus employed interferes with drainage and increases the absorption of toxins, but its use is the choice of the lesser of two evils. The infliction of traumatism on the infected uterus by forcibly emptying it is inconsistent with the modern treatment of infected wounds, and is an inheritance of a dangerous tradition which was based on a false pathology.

Watkins reports 100 cases dating back eight years when operative interference was discontinued, except in individual instances. Nearly all the patients were the severely infected ones who are usually referred to a hospital. Of the 100 patients, ninety-one recovered and nine died. Seven of the fatal cases had generalized peritonitis and were in an apparently hopeless condition on admission to the hospital. One died from large multilocular pelvic abscesses, which were incised and drained and terminated in generalized peritonitis and death. The other death was from a general hemolyzing streptococcus infection with numerous mycotic abscesses. Vaginal section was made twelve times for exploration and drainage. Seven of the patients thus treated were in the first twenty of the series, and only five of the patients out of the last eighty were so treated.

Forty-nine of the patients had pelvic exudates, which varied in size from slight indurations to masses that extended from the pelvic floor to the umbilicus. The relatively large number of these exudates is accounted for by the fact that most of the patients had been curetted one or more times and had become desperately ill before they were sent to the hospital. None of these exudates have required incision and drainage. These exudates had practically all disappeared at the time the patient left the hospital, after an average stay of between three and four weeks. The exudates have shown very little tendency to absorb while the fever existed. When the temperature became normal, i. e., when the exudate became sterile, absorption took place rapidly.

Six of the patients were subjected to abdominal section. All of these operations proved to be mistakes in diagnosis or surgical judgment. Three of them were of special interest. In two a large solid inflammatory exudate with extensive intestinal involvement was found. The abdomen was closed in both cases without disturbing the exudate. In both of the cases the exudate had entirely disappeared when the patient left the hospital about four weeks later. In one of these patients an abdominal section was made for suspected tubal pregnancy. The section revealed the presence of a streptococcus abscess involving the top of the left broad ligament, the ovary and the tube. Incision of the diseased tissue was easily made without much contamination of adjacent surfaces. Although this patient had practically no fever and was not very ill before operation, after the section she had a temperature of 103 F. to 105 F., had extensive suppuration and sloughing, and was for weeks dangerously sick. The indications are that this patient without operation would have made an easy, quick and complete recovery. Sixty of the patients were treated by supportive treatment only; in most of the other patients the treatment consisted chiefly in the use of remedies to increase the body resistance. In many of the patients the temperature curve has been peculiar in that the fever would be relatively high for periods of two or three days, with intervals of much lower average temperature for about the same time. This peculiar fever, Watkins believes, was probably due to remittent escape of bacteria into the blood-stream.

Boston Medical and Surgical Journal

September 25, CLXIX, No. 13, pp. 449-484

10 *Needs of Future in Hospital Administration. F. A. Washburn, Boston.
11 Atrophic Rhinitis with Ozena: Its Etiology and Surgical Treatment. F. P. Emerson, Boston.
12 Spinal Abscesses. J. K. Young, Philadelphia.
13 Size of Hospitals for Insane and Feeble-Minded. W. M. Smith, England.
14 *Classification of Nephritis from Pathologic Point of View. F. B. Mallory, Brookline, Mass.
15 *Significance of Urinary Acidity in Nephritis. W. W. Palmer, Boston.
16 Clinical Functional Tests. Methods. E. L. Young, Boston.
17 Nitrogenous Waste Products in Blood in Nephritis. O. Folin and W. Denis, Boston.
18 General Summary of Significance of Methods of Testing Renal Function. H. A. Christian, Boston.
19 New Antrum Knife. O. A. Lothrop, Boston.

October 2, No. 14, pp. 485-520

20 Indications for and Relative Values of Tonsillotomy and Tonsillectomy. J. L. Goodale, Boston.
21 *Rational Treatment of Genito-Urinary Tuberculosis. R. F. O'Neil and J. B. Hawes, Boston.
22 Observations on Series of Ninety-Eight Consecutive Operations for Chronic Appendicitis. E. A. Codman, Boston.
23 Case of Infection with Nocardia. A. E. Steele, and R. I. Lee, Boston.
24 Relief of Earache and Induction of Operative Anesthesia by Infiltration of Auriculotemporal and Tympanic (Jacobson's) Nerves. P. G. Skillern, Philadelphia.

10. **Needs of Future in Hospital Administration.**—The chief of a medical or surgical service, Washburn says, can no longer give what the modern hospital requires by visiting his patients for an hour or two daily. The hospital should demand that each chief shall devote at least a half of each day to its service; that private practice shall be secondary. The ideal chief of service should have youth, yet his judgment must be mature; he must have vigor and enthusiasm. He must be just and generous in recognizing and promoting the efforts of his subordinates. He should be able to plan pieces of investigation for his staff and stimulate their accomplishment. He should see to it that the expensive "hospital days" are not wasted either by patients waiting the convenience of the surgeon for operation or by unnecessary stay in the hospital for sepsis. He would pay such men adequate salaries. His message to the larger hospitals is: Give more attention to medical and surgical efficiency and to that end get the right men for chiefs of service and pay them adequately to devote a large measure of time to the hospital.

He believes that too many small hospitals are started without adequate provision for their support. The result is a constant struggle and a probable attempt to make the unfortunate nurse in charge carry a greater burden than anyone should be asked to carry, both in hours of work and responsibility. He urges that medical men use their influence against the starting of a hospital until it has been clearly shown that it is necessary: that the location suggested best meets the need: that there is adequate support in evidence, and that its conduct is in the hands of those whose ideals are high and whose methods are practical.

14. **Classification of Nephritis.**—In studying the lesions of the kidney, Mallory states it is important to bear in mind that it is composed of a large number of small units. Every unit consists of an afferent vessel, and of a glomerulus composed of a knot of capillaries, and of a tubule. The blind invaginated end of the tubule is applied to the surface of the glomerulus. Its actual beginning is known as the capsular space. In addition to these four main structures of a unit there is an efferent vessel and a network of capillaries derived from it and surrounding the tubule. These vessels are of minor importance. A little connective tissue surrounds the vessels and tubule and extends in small amounts into the glomerulus.

Of these different structures in a unit the glomerulus, where blood-vessel and epithelium are in close association, seems the most susceptible to the action of injurious agents.

If any of the four essential parts of a renal unit is destroyed, the other three in time atrophy and cease to function. Each part is useless without the other three.

In order to understand the lesions of the kidney, Mallory says, it is necessary to separate it into its units and study the effect of injurious agents on each part of the unit.

The toxic lesions of the kidney are best classified on an anatomic basis, i. e. according to the part of the renal unit most affected. This classification gives four groups which form the type lesions; they are as follows: 1. Tubular nephritis. 2. Capsular glomerulonephritis. 3. Intracapillary glomerulonephritis. 4. Vascular nephritis (arteriosclerosis). Each one of these varieties may occur practically in pure form, but the first three may be, and often are, combined in varying proportions. Whether the first three can be recognized clinically as three distinct types, Mallory believes, is doubtful. While usually acute, they also occur in subacute and chronic form; vascular nephritis is always chronic.

15. **Urinary Acidity in Nephritis.**—Palmer has reached the conclusion that mild states of acidoses not infrequently occur in nephritis, and other unsuspected cases and that the therapeutic use of alkali (in such quantity as to reduce the urinary acidity to that of blood) is often desirable. He also believed that the deviation from the normal of the kidney function in acid excretion is important both in differential diagnosis and prognosis.

21. **Treatment of Genito-Urinary Tuberculosis.**—The authors advocate the judicial combination of surgery, proper hygiene, tuberculin and the careful consideration of the individual needs of each patient. They report on twenty-four cases of renal tuberculosis in which nephrectomy was performed. Only one patient died. The others are improving.

Delaware State Medical Journal, Wilmington

August, IV, No. 9, pp. 1-26

25 Needs of Crippled Children in State of Delaware. D. C. McMurtrie, New York.

Indiana State Medical Association Journal, Fort Wayne

September, VI, No. 9, pp. 385-436

26 Details of Abdominal Surgery. T. B. Eastman, Indianapolis.
27 Acute Appendicitis. E. R. Royer, North Salem.

Journal-Lancet, Minneapolis

October 1, XXXIII, No. 19, pp. 533-560

28 Demonstration of Anatomic Treatment of Fractures of Femoral Neck. C. E. Ruth, Des Moines, Ia.
29 Unpublished 1884 Paper on Treatment of Fracture of Humerus. F. Burton, Minneapolis.
30 Phenolsulphonephthalein Test for Estimating Renal Function. G. S. Adams and E. Y. Eyman, Yankton, S. D.

Laryngoscope, St. Louis

September, XXIII, No. 9, pp. 881-959

31 Applied Anatomy and Intranasal Surgery of Ethmoidal Labyrinth. H. P. Mosher, Boston.
32 Paraffin Nasal Bridge Building-Technic and Report of Cases. E. Vansant, Philadelphia.
33 Technic and After-Treatment of Submucous Resection without Packing. L. Ostrom, Rock Island, Ill.
34 Simple Submucous Ledge Operation. R. H. Johnston, Baltimore.
35 Vincent's Angina. G. H. Cocks, New York.
36 Case Exhibiting Laryngeal Crises. C. E. Ide, Los Angeles.
37 Some Interesting Esophageal Cases. W. P. Millspaugh, Los Angeles.
38 Three Cases of Otitic Meningitis Treated by Drainage of Cisterna Magna. E. B. Dench, New York.
39 Traumatic Atresia of External Auditory Meatus of Left Ear with Mastoid Complications. E. Danziger, New York.
40 Injuries of Labyrinth. J. Auerbach, New York.

Medical Record, New York

September 27, LXXXIV, No. 13, pp. 553-598

41 Study of Chronic Intestinal Stasis. W. S. Bainbridge, New York.
42 Exophthalmic Goiter Cured by Ligating One Superior Thyroid Artery. L. F. Watson, Oklahoma City.
43 Complications of Peptic Ulcer. J. N. Hall, Denver, Colo.
44 Preventable Deafness. W. H. Tomlinson, Philadelphia.
45 Alaska and Its Health. A. C. Reed, Pomona, Cal.
46 Unilateral Amblyopic and Diplopia following Suppressio Mensium. S. L. Phillips, Savannah, Ga.
47 Collapsible-Weighted Stomach-Tube and New Gastric Glass Bulb. I. O. Palefski, New York.

October 4, No. 14, 590-644

48 *Colliculitis, or Disease of Verumontanum. A. L. Wolbarst, New York.
49 Venereal Prophylaxis—Past and Present. R. A. Bachman, U. S. Navy.
50 Antityphoid Vaccination. A. H. Doty, New York.
51 Extract of Hypophysis of Ox in Treatment of Rheumatic Arthritis. C. Wallace, New York, and F. S. Child, Port Jefferson, N. Y.
52 Colon: Its Malignancies. J. F. Erdmann, New York.
53 Stuttering and Its Treatment. F. A. Bryant, New York.
54 *Unusual Case of Appendicitis (Retrocecal) Associated with Rare Anatomic Anomalies. V. A. Lapenta, Indianapolis, Ind.

48. **Colliculitis.**—The treatment of the colliculus, Wolbarst says, consists almost entirely in the application of silver nitrate to the organ through the posterior urethroscope. He prefers a 10 per cent. solution, applied with a cotton carrier; a 20 per cent. solution is often recommended, and has known instances in which the pure silver stick has been employed. He believes there is no advantage to be obtained in the use of solutions of such great strengths, and that the reaction is sometimes too great to be of any service to the patient.

Similarly, with tincture of iodin; while it may be effective in weak solution, it is altogether too irritant in full strength, and the reaction which follows such an application is often so great that patients justly refuse a second treatment. Bleeding, urinary strangury, and tenesmus, and even complete retention of urine have followed these strong applications of silver and iodin. The galvanocautery may be used with benefit, and the Oudin high-frequency current likewise. The latter is particularly indicated in the presence of cystic and papillomatous growths, and also for the "fulguration" of dilated ducts and glands. Applications should be made at rather infrequent intervals, as allowance must be made for the passing off of the reaction which always follows. An interval of from four to seven days appears to Wolbarst the most satisfactory and beneficial.

54. **Unusual Case of Appendicitis.**—The patient consulted Lapenta on account of a "stone in the kidney." She related that this was the fourth attack that she had experienced in the last year. The face of the patient had the appearance of a prolonged toxemia, the facies peritonitica was lacking, abdomen was not at all distended, nor did the patient complain of abdominal distress. She did, however, complain of a pain in the lumbar region corresponding to the location of the right kidney. On palpation of the right iliac region pain was elicited. There was no rigidity of the rectus muscle nor was any muscular reaction caused by the pressure. The temperature curve as observed for three days was also against the diagnosis of renal colic, as it evidenced the presence of pus. The leukocyte count was 14,500; differential examination revealed 82 per cent. polymorphonuclear neutrophils with few eosinophils. Lapenta diagnosed retrocecal appendicitis.

At operation the cecum was found enveloped in a peritoneal membrane extending from above the iliocecal juncture to the end of the cecum, forming a well marked mesentery to the cecum, this membrane being strongly fixed to the posterior wall of the iliocecal fossa. The membrane was opened and gradually dissected from the underlying cecum on both sides of the gut and to the line where it resembled a mesenteric attachment. The folds of this false mesentery were opened and the appendix was then exposed. It was a very large appendix firmly adhered to the cecum. In this funnel-shaped envelope there was only a very small amount of pus. The appendix was dissected loose from the cecum and removed and the membrane was removed from its attachment at the posterior abdominal wall.

Mississippi Medical Monthly, Vicksburg

October, XVIII, No. 6, pp. 107-126

55 Hypertension. S. C. Spencer, Shannon.
56 Tuberculosis Can Be Cured. F. E. Lee, Aberdeen.
57 Treatment of Opium Addiction. J. W. Stevens, Nashville, Tenn.

New York Medical Journal

September 27, XCVIII, No. 13, pp. 597-644

58 Public Education in Cancer. W. Meyer, New York.
59 Pulmonary Syphilis. A. E. Roussel, Philadelphia.
60 Eugenics and Public Health. C. P. Wertenbaker, Norfolk, Va.
61 Etiology of Hypertrophic Pulmonary Osteo-Arthropathy. H. Brooks, New York.
62 Surgical Treatment of Monarticular Rheumatoid Arthritis of Hip. A. M. Forbes, Montreal.
63 Routine School Disinfection. J. T. A. Walker, New York.
64 Epithelioma of Lower Lip in Woman. F. Wise, New York.
65 Treatment of Cachexia of Malnutrition. F. Smithies, Rochester, Minn.
66 Prophylaxis of Insanity. H. C. Podall, Norristown, Pa.
67 Obstetric Experiences of Country Doctor. C. L. Sigler, Pinckney, Mich.

October 4, No. 14, pp. 645-696

68 Ultimate Results of Chetwood Operation for Retention of Urine. E. L. Keyes, New York.
69 Eternal Medical Verity. W. B. Konkle, Montoursville, Pa.
70 New Principle in Esophagoscopy. R. Lewisohn, New York.
71 Eosinophilia Produced by Hypodermic Injections of Crotalin Solution. R. H. Spangler, Philadelphia.
72 Use of Pharyngoscope by General Practitioner. H. Hays, New York.
73 Pediculosis Capitis Among Schoolchildren. J. Sobel, New York.
74 Roentgenoscopy in Diseases of Chest and Abdomen. L. Clendening, Kansas City.
75 Etiology of Hypertrophic Pulmonary Osteo-Arthropathy. H. Brooks, New York.
76 Two Cases of Luetic Keratitis. J. E. Braunstein, New York.

New York State Journal of Medicine, New York

September, XIII, No. 9, pp. 457-510

77 Chronic Gonorrheic, from Standpoint of Surgery and Eugenics. J. N. Vander Veer, Albany.
78 Wassermann Reaction in Hereditary Syphilis, in Congenital Deformities and in Various Other Conditions in Infants. L. E. Holt, New York.
79 Menorrhagia and Metrorrhagia—Suggestions as to Treatment and Recent Claims for Roentgenotherapy. W. B. Chase, Brooklyn.
80 Vincent's Angina. G. H. Cocks, New York.
81 Physiology of Hypophysis Cerebri. S. Simpson, Ithaca.
82 Intranasal Approach to Hypophysis. L. A. Coffin, New York.
83 Ocular Disturbances of Hypophyseal Disease. A. Knapp, New York.
84 Analysis of Shock. A. S. Chittenden, Binghamton.
85 *Apparent Cure in Case of Hydrophobia. J. H. Haberlin, Pawtucket, R. I.
86 Relation between Carious Teeth and Malnutrition. C. D. Carter, Kingston.

85. **Cure in Hydrophobia.**—In a case of rabies cited by Haberlin, 10 c.c. of 1 per cent. aqueous solution of phenol were injected into the subcutaneous tissues of the abdominal wall by means of an Ehrlich-Hata syringe at 8:30 p. m. on the day of the attack, which occurred five weeks after the dog bite. At 9:00 p. m. 10 c.c. of a 2 per cent. solution were injected similarly and repeated in an hour. At 11:00 p. m. there was a very perceptible improvement in the patient's condition. Hourly doses of the 1 per cent. solution were now resumed and administered until 8:00 a. m. A total of eleven doses, therefore, of the 1 per cent. solution and two doses of the 2 per cent. solution were administered, or, in the aggregate, an equivalent of 1½ grams (22½ grains), of pure phenol. At 2:00 a. m., six hours after beginning treatment, the patient became somnolent, and when aroused was able to swallow readily. At this hour he was aroused for the first time by the insertion of the large caliber needle. He stated that he now was conscious of his surroundings for the first time since early evening, and when reminded of his previous actions and statements denied any realization of them. He was catheterized at 2:00 a. m., about 8 ounces of urine being recovered, which contained a trace of albumin, but was otherwise normal. He did not require catheterization again, and subsequent specimens were normal. On the fourth day the patient was out of doors, and on the sixth day resumed work, there being no further sequela than a few days' prostration, which reasonably may be ascribed to excess muscular activity. There were no evidences, locally or generally, of any deleterious effects of the exhibition of the phenol.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

September, XVII, No. 3, pp. 109-170

87 Syphilis of Heart and Aorta: Diagnosis and Treatment. A. G. Brown, Richmond, Va.
88 One Thousand Cases of Appendicitis. M. Willis, Richmond, Va.
89 Importance of Determining Infecting Focus and of Isolating Specific Agent in Cases of Infectious Polyarthritis. J. M. Tompkins, Richmond, Va.
90 Ophthalmia Artefacta. H. D. Bruns, New Orleans.
91 Interesting Neurodermatologic Case. H. E. Menage, New Orleans.
92 Villous Polypus of Recto-Sigmoid Juncture Removed by Ligation and Clamp. B. C. Willis, Richmond, Va.

Ophthalmic Record, Chicago

October, XXII, No. 10, pp. 591-644

93 Hitherto Undescribed Anomaly of Macular Retina. H. S. Gradle, Chicago.
94 Implantation of Fat in Tenon's Capsule. C. N. Spratt, Minneapolis.
95 Care of Schoolchildren at Moorfields. S. H. Brown, Philadelphia.
96 Burn of Eye-Ball due to Caustic Contents of Golf-Ball. L. W. Crigler, New York.

South Carolina Medical Association Journal, Seneca

September, IX, No. 9, pp. 238-267

97 Some Causes of High Infant Mortality and How It May Be Reduced. W. Weston, Columbia.
98 Ureteral Calculus. A. B. Knowlton, Columbia.
99 Membranous Pericolitis. A. E. Baker, Charleston.

Surgery, Gynecology and Obstetrics, Chicago

September, XVII, No. 3, pp. 271-380

100 *Significance of Anemia as Operative Risk. H. T. Byford, Chicago.
101 *Operations on Patients with Hemoglobin of Forty Per Cent. or Less. T. S. Cullen, Baltimore.
102 *Conduct of Pregnancy and Labor in Acute and Chronic Affections of Heart. J. C. Webster, Chicago.
103 Conduct of Gynecologic Operations in Presence of Chronic Affections of Heart. E. Reynolds, Boston.
104 Conduct of Gynecologic and Obstetric Operations in Presence of Acute and Chronic Endocarditis. J. O. Polak, Brooklyn.
105 *Calcium Content of Blood during Pregnancy, Labor and Puerperium. W. H. Morley, Detroit, Mich.
106 Pathology the Basis of Gynecology. H. C. Coe, New York.
107 *Management of Puerperal Thrombophlebitis. P. Findley, Omaha, Neb.
108 *Under What Conditions Should Uterine Inertia Be Treated by Artificial Delivery? E. B. Cragin, New York.
109 Iodin in Sterilization of Skin. H. Robb, Cleveland.
110 Uterine Carcinoma: Another Hypothesis As To Its Cause and Prevention. A. F. A. King, Washington, D. C.
111 *Factors in Formation of Skin Striations During Pregnancy. F. J. Taussig, St. Louis.
112 Ventral Tumors of Sacrum. A. A. Law, Minneapolis.
113 Intra-Uterine Fracture. R. R. Smith, Grand Rapids, Mich.
114 Compilation of Methods Used and Results Obtained by Fellows of Chicago Society in Brain Surgery. W. R. Cubbins, Chicago.
115 *Operation for Cure of Rectocele and Restoration of Function of Pelvic Floor. G. G. Ward, New York.
116 *Demonstration of Infant Pulmotor; Its Use in Treatment of Asphyxia Neonatorum. H. D. Fry, Washington, D. C.
117 *Operative Treatment of Inaccessible Vesico-Vaginal Fistulae by Ward's Operation. F. W. Parham, New Orleans.
118 Ligature Scissors. J. M. Birnie, Springfield, Mass.
119 Method of Applying Heat Both to Inhibit and Destroy Inoperable Carcinoma of Uterus and Vagina. J. F. Percy, Galesburg, Ill.
120 Acute Perforating Gastric and Duodenal Ulcer. W. D. Wise, Baltimore.
121 Cases of Dysmenorrhea Relieved by Nasal Treatment. J. Brettauer, New York.
122 Uterine Inertia—Its Treatment. G. T. Harrison, Charlottesville, Va.

100. **Significance of Anemia as Operative Risk.**—Patients who have been anemic long enough to acquire the anemic habit, who have a normal or rather high blood-pressure, an erythrocyte count above 4,000,000, who are leading a physically active life without great discomfort and who are not noticeably emaciated, Byford says, make much better operative risks than the degree of anemia considered alone would indicate. On the contrary, anemic patients with a low blood-pressure, an erythrocyte count less than 4,000,000 and marked emaciation, who are unable to take a considerable amount of daily active physical exercise with comfort and without complaint, or who are bed-ridden and mentally hyperesthesic or depressed, often make much poorer risks than the degree of anemia alone would lead us to suspect. Anemic patients presenting one or more of these characteristics should be studied with reference to the hygienic conditions of their immediate past and the pathologic changes present. Starvation, hemorrhage, loss of rest, erroneous ideas or injurious habits with regard to work or indulgences or social duties, chronic or recent septic infection, incipient or chronic disease of any kind should be looked for. In other words, the surgeon should not operate, except in emergency cases, on an anemic patient until he has gone over the case history, the symptoms and the functions of the organs in a searching manner.

101. **Operations on Patients with Low Hemoglobin.**—Cullen finds that, as a rule, patients with a relatively low hemoglobin percentage stand pelvic or abdominal operations fairly well. Where carcinoma of the cervix or body of the uterus exists, however, the dangers are materially increased. In those cases in which the bleeding is limited entirely to the menstrual period it is well to defer operation until a few days before the next period in order to raise the percentage of hemoglobin to the maximum. Hyperplasia of the endometrium is a definite disease. The bleeding caused by this condition often leads to a low hemoglobin index, which can be temporarily checked by curetting. Sometimes after two or three curettings in the course of a year the excessive flow ceases. In other cases it is necessary to remove the body of the uterus. Cullen emphasizes strongly the necessity of becoming thoroughly familiar with the technic of transfusion. This procedure, as simplified by Bernheim, can readily be employed by any surgeon and should not require more than twenty minutes to half an hour. Transfusion will certainly in the near future become a routine procedure in cases in which operations are required on patients with a very low hemoglobin.

102. Abstracted in THE JOURNAL, May 31, p. 1737.

105. **Calcium Content of Blood During Pregnancy.**—The results of Morley's observations show that there is a lessened amount of calcium in the blood of pregnant and puerperal women and of women in labor. The actual calcium index varied somewhat from 1.2 to 0.06 crystals per square. Assuming that the arbitrary standard of Blair Bell of 1.5 to 1.2 is the normal calcium index of ordinary individuals of middle life, the results tabulated show that pregnancy, labor and the puerperium cause a withdrawal of calcium from the mother's blood. Just what the destination of the calcium is, whether taken up by the fetus during pregnancy, or by the uterus during labor, or by the breasts during lactation, must be left for later investigation. Morley suggests that some day the unsettled etiology of the toxemias of pregnancy may be explained by some disordered calcium economy on the part of the patient.

107. Abstracted in THE JOURNAL, May 31, p. 1737.

108 and 111. Abstracted in THE JOURNAL, May 31, p. 1734.

115. **Operation for Cure of Rectocele.**—Ward's operation consists in first completely separating the rectum from the posterior vaginal wall, as far up as the culdesac of Douglas, and then sliding the loosened rectal pouch high up along the vaginal wall by means of a suture. Thus the denuded rectum is carried up and placed so as to adhere strongly to the upper third of the posterior vagina which is above the former site of the rectocele. The perineorrhaphy described has been done in its essentials by Ward since May, 1908, with slight modifications from time to time. A buttonhole is made in each vaginal sulcus by passing a pair of closed scissors through the fascia, or the cicatricial tissue which has replaced it. This opens into the fossa in which lies the levator, the anterior edges of which are drawn out of the buttonholes with a forceps, and they are sutured together in the median line. The approximation of the anterior borders of the levator ani has been criticized as producing a weak support, owing to the fact that muscle applied to muscle will not make a firm union. To give the necessary fascial support to this muscular union and thus overcome this criticism, the writer carefully sutures the edges of the opposite fascial buttonholes together over the approximated levator fibers. The results of this procedure have been most satisfactory, as to the restoration of function, when used alone in cases without rectocele, and when combined with the rectocele operation.

116. Abstracted in THE JOURNAL, May 31, p. 1735.

117. **Treatment of Vesico-Vaginal Fistulae.**—The operation as here outlined by Parham has as its prominent feature the free exposure and mobilization of the bladder so as to pull it down sufficiently to make it accessible. The inaccessible fistula then becomes quite accessible. The essential features of the operation are: 1. Liberal dissection of the vaginal mucous membrane, so as to mobilize freely the bladder and bring the fistula within reach. 2. Beginning the dissection well forward, just behind the meatus urinarius, where the natural lines of cleavage make it possible to separate easily the vaginal membrane from the bladder wall. 3. The use of a lever in the bladder to push down the bladder so as to make the fistula accessible for suture.

Texas State Journal of Medicine, Fort Worth

September, IX, No. 5, pp. 147-174

123 Case of Spontaneous Rupture of Malarial Spleen: Splenectomy. W. T. Davidson, U. S. Army.
124 Intestinal Obstruction due to Gall-Stones. W. B. Thorning, Houston.
125 Autopsy Findings in Galveston During Period of Two Years. G. C Kindley, Galveston.
126 Duodenal Ulcers. J. H. Hewitt, Dallas.
127 Eugenics, Science of the Future. L. Mackechney, Wichita Falls.
128 Eradication of Malaria. P. J. Shaver, San Marcos.
129 Malaria and How To Prevent It. A. Woldert, Tyler.

Vermont Medical Monthly, Burlington

September, XIX, No. 9, pp. 209-234

130 Malpractice and Doctor on Witness-Stand. W. B. Vanderpoel, New York.
131 Comparative Value of Local Anesthesia and Nerve Blockinig in Major and Minor Surgery. C. A. Pease, Burlington.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 20, II, No. 2751, pp. 713-776

1 *Dynamic Side of Biochemistry. F. G. Hopkins.
2 Abdominal Surgery. W. F. Cholmeley.
3 Technic and Performance by New Method of Wertheim's Abdominal Panhysterectomy. C. P. Childe.
4 Carcinoma of Pelvic Colon, Ovarian Tumor and Appendicitis, Necessitating Repeated Abdominal Section. L. McGavin.
5 Three Successful Operations for Perforative Typhoid Ulcer. A. B. Mitchell.
6 Op [illegible] Complicated by Measles and [illegible] rwin.
7 True Total Enucleation of Two Hydatid Cysts from Same Liver. J. P. Buckley.
8 Method of Operating for Radical Cure of Inguinal Hernia. W. T. F. Davies.
9 Technic and After-Treatment of Radical Mastoid Operation. W. Milligan.
10 Care of Patients after Operations on Nose and Nasopharynx, and Complications of These Operations. H. Tilley.
11 Rhinoscleroma. O. Richards.
12 *Analogy between Otosclerosis and Arthritis Deformans. J. F. O'Malley.
13 Anatomy and Comparative Anatomy of Palatine Tonsil and Its Rôle in Economy of Man. S. Hett.

1. See abstract No. 27 from the *Lancet*.

12. **Analogy Between Otosclerosis and Arthritis Deformans.**—O'Malley sums up his *conclusions* as follows: Chronic adhesive processes of the ear, or, as Kerrison calls it, chronic hyperplastic otitis media, is rheumatoid arthritis affecting the organ of hearing. Otosclerosis is osteo-arthritis of the stapediovestibular articulation and of the bony labyrinthine capsule. The morbid changes of chronic hyperplastic otitis media and rheumatoid arthritis are practically identical, and those found in typical otosclerosis are similar to those found in osteo-arthritis and in spondylitis deformans. As all the affected structures are developmentally, anatomically and physiologically alike, and when in these structures identical types of destructive and reparative changes occur, the natural inference to be drawn is that these processes are the result of a common pathogenesis. When in addition to the identity of morbid anatomy, we find a striking analogy between the two diseases in the points of age, sex, race, hereditary incidence, symmetry of lesion, trophic changes, courses, associated disease and conditions which are to influence onset and exacerbations, pathogeny and lines of treatment, the above seems to be the only conclusion to which an unbiased observer can come. In all the morbid changes there are two outstanding features—namely, atrophy and hypertrophy, running side by side or alternating, the atrophy being an active process as well as the hypertrophy. In the case of chronic hyperplastic otitis media and rheumatoid arthritis one finds the most marked activity of the disease in the soft or clothing tissues, which first undergo thickening, to be frequently followed by atrophy, the latter ultimately involving the supporting structures. In the case of otosclerosis and osteo-arthritis, the most marked activity of the pathologic changes is in the form of supporting tissues, the cartilage undergoing proliferation and ossification with the formation of osteophytic overgrowths. The essential pathogenic factor underlying an active atrophy and hypertrophy can be only one, namely, nutritional, although the conditions which may cause nutritive disturbances are manifold. As nutritional disturbances in tissue can be brought about by infective, vascular, nervous, traumatic and metabolic influences, either or all of which may be acting in any given case, it is therefore impossible to fit otosclerosis or osteo-arthritis into one air-tight pathogenic compartment. O'Malley is, however, of the opinion that the essential factor underlying the morbid changes is a chemical one, affecting the nutritive stability of developing and fully developed bone and cartilage, comparable to the rachitic phenomena which occur in developing osseous tissues, but how these chemical disturbances are *actually initiated* is at present not possible to explain.

Clinical Journal, London

August 20, XLII, No. 20, pp. 305-320

14 *Gall-Stones. F. J. Steward.
15 Acute Intussusception. H. Lett.
16 Cirrhosis of Liver. J. M. Whyte.

August 27, No. 21, pp. 321-336

17 Causes and Treatment of Glycosuria. H. L. Tidy.
18 Adenoids and Enlarged Tonsils. T. M. Martin.

September 3, No. 22, pp. 337-352

19 Pneumothorax. J. W. Carr.
20 Case of Head Injury. L. McGavin.
21 Latency of Symptoms in Fracture of Neck of Femur in Adolescents. E. D. Telford.
22 Case of Chronic Nephritis. H. L. McKisack.

September 10, No. 23, pp. 353-368

23 Acute Abdominal Pain in Pregnancy. H. R. Andrews.
24 Fibrosis of Lung and Bronchiectasis in Children. H. M. Fletcher.

September 17, No. 24, pp. 369-384

25 *Tuberculosis of Cervical Lymph-Node. F. C. Pybus.
26 Significance, Treatment and Prognosis of High Blood-Pressure. W. Edgecombe.

14. **Gall-Stones.**—Steward holds that there is only one rational method of treating gall-stones, and that is to remove them by operation. This should be advised under the following *circumstances:* 1. *In cases exhibiting the characteristic* symptoms of gall-stone dyspepsia. 2. In view of the dangerous complications that may result from gall-stones, and especially that of cancer of the gall-bladder, and in view of the smallness of the risk attaching to an exploratory operation, this should be performed in all cases of intractable chronic dyspepsia of a type strongly suggesting the presence of gall-stones. 3. When there have been definite attacks of biliary colic, either with or without jaundice. 4. When the gall-bladder is or has been enlarged owing to impaction of a stone in the cystic duct. 5. In certain cases of obstructive jaundice, due to gall-stones impacted in the common duct. To decide when to operate in these cases is, in his opinion, the most difficult point in gall-stone surgery, and requires very careful judgment. It is, he says, clearly advisable in the absence of contra-indications to give the ducts a chance to get the stone through, and so finish the business. As to the length of this period of grace, that is determined by consideration of the following circumstances: If in the presence of obstructive jaundice the attacks of pain recur from time to time, that is evidence that the stone is not completely at a standstill, but is being gradually forced along the duct and may eventually pass safely into the duodenum. This may, of course, take some time, and there is a general opinion that three weeks should be allowed for the purpose. If, on the other hand, attacks of colic—indicating contractions of the duct—are not repeated, while obstructive jaundice remains complete, Steward takes this to be an indication that the stone is stationary, and would not wait more than about ten days if there are no

indications to operate sooner. The degree of inflammatory complication is, however, the real determining factor in this question, for it is this that most seriously affects the general condition of the patient, and so may make it imperative to operate. Thus if the liver is enlarged and tender, vomiting frequent, pyrexia marked, and the general condition of the patient progressively deteriorates while the pulse-rate rises, the risk of operative interference becomes daily greater, and there must therefore be no further delay. To sum up, Steward says: Wait a reasonable time before operating, but only if the patient's condition remains good and the temperature and pulse-rate are not rising.

25. **Tuberculosis of Cervical Lymph-Node.**—Pybus emphasizes that before removal of tuberculous lymph-nodes is advised, a general examination should be made to exclude other foci in the body. Although tuberculous cervical lymph-nodes are a localized infection from the tonsil, the tubercle bacilli present in the milk may equally well have infected the respiratory or digestive tract, and there may be extensive lesions in these parts in addition to those at the entrance to these tracts. Briefly detailed, Pybus' routine is as follows when a child presents itself with tuberculous lymph-nodes: If the tonsils are the infective focus, the child is first referred to the dentist to have any carious teeth removed. When the mouth is clean the tonsils are enucleated, and when the throat is healed general treatment or operation is carried out according as it is necessary. The site of an infective focus can be determined from the particular group of lymph-nodes enlarged. The pharynx and nasopharynx are the commonest sites from which the tubercle bacillus gains entrance. The tonsils are frequently tuberculous. A tuberculous tonsil may be enlarged; more commonly it is small and hidden, and very liable to be overlooked. Enucleation of the tonsil is essential if this is the infective focus. The supply of tubercle bacilli comes from tuberculous cow's milk. If the infective focus is removed the tuberculous lymph-node may undergo a natural cure. If caseation has progressed far in a lymph-node complete resolution is almost impossible, and if the disease fails to improve on treatment, removal of the node should be carried out. A rapid enlargement or softening of a node means that a subcutaneous abscess has formed, and that scraping will not cure it. The node causing the abscess lies under the deep fascia and may be quite small. Prevention is better than cure. Operations are difficult and should only be undertaken by a skilled surgeon, while recurrences, even after extensive dissections, are not unknown. Tuberculous cervical lymph-nodes, Pybus states, are a local disease, but are often associated with tuberculosis elsewhere in the body. The results of treatment may therefore be disappointing, and this emphasizes the necessity for general sanatorium treatment.

Lancet, London

September 20, II, No. 4699, pp. 851-910

27 *Dynamic Side of Biochemistry. F. G. Hopkins.
28 Necessity for International Reforms in Sanitation of Crew Spaces on Merchant Vessels. J. Howard-Jones.
29 Detection of Small Amounts of Glucose in Urine. S. W. Cole.
30 Incidence of Inherited Syphilis in Congenital Mental Deficiency. J. L. Gordon.
31 Treatment of Cholecystitis by Cholecystectomy. J. O'Conor.
32 Ether Anesthesia in Nose and Throat Operations. R. E. Apperly and S. Hastings.
33 Three Cases of Infantile Convulsions. J. Gilroy.
34 *Ovarian Cyst Exposed Per Vaginam during Delivery. D. C. Kemp.

27. **Dynamic Side of Biochemistry.**—Hopkins draws attention to certain of the various steps by which we have arrived at a knowledge of the synthetic powers of the animal body. Commencing with the original discovery of Andrew Ure that an increased excretion of hippuric acid followed on the exhibition of benzoic acid he detailed the experiments of Bunge and Schmiedeberg, and alluded to the question of how far the body could extend its supply of glycin when stimulated by increasing doses of benzoic acid. He next dealt with the researches of Baumann and the syntheses where the sulphur group plays a part, in which substances are so treated in the body as to reappear in conjugation with protein derivatives; with the syntheses in which the substance supplied by the body is derived, not from protein but from carbohydrate; with the methylation undergone by certain compounds. Recent progress points in the clearest way to the fact that the molecules with which a most important and significant part of the chemical dynamics of living tissues is concerned, are of a comparatively simple character. The synthetic reactions which have been described surely prepare us for this view; but it may be felt that, however important, they represent abnormal events, while the study of them has been largely confined to determining the end-products of change. With regard to normal metabolism and intermediary reactions, Hopkins says we know first of all that the raw material of metabolism is so prepared as to secure that it shall be in the form of substances of small molecular weight; that the chief significance of digestion, indeed, lies in the fact that it protects the body from complexes foreign to itself. Abderhalden has ably summarized the evidence for this, and has shown us also that, so far as the known constituents of our dietaries are concerned, the body is able to maintain itself when these are supplied to it wholly broken down into simple *bausteine*, any one of which could be artificially synthesized with the aid of our present knowledge. Dealing especially with the proteins, we have good reason to believe that the individual constituent amino-acids, and not elaborate complexes of these, leave the digestive tract, while Folin, Van Slyke and Abel have recently supplied us with suggestive evidence for the fact that the individual amino-acids reach the tissues as such and there undergo change. But still more important, Hopkins believes, is the fact that recent work gives clear promise that we shall ultimately be able to follow, on definite chemical lines, the fate in metabolism of each amino-acid individually; to trace each phase in the series of reactions which are concerned in the gradual breakdown and oxidation of its molecule. Our knowledge of the fate of amino-acids is arrived at by the combination of many ingenious methods of study. It is easy in the animal, as in the laboratory, to determine the end-products of change; but, when the end result is reached in stages, it is by no means easy to determine what are the stages, since the intermediate products may elude us. And yet the whole significance of the processes concerned is to be sought in the succession of these stages. In animal experiments directed to the end under consideration, investigators have relied first of all on the fact that the body, though the seat of myriad reactions and capable perhaps of learning, to a limited extent and under stress of circumstances, new chemical accomplishments, is in general able to deal only with what is customary to it. This circumstance has yielded two methods of determining the nature of intermediate products in metabolism. Considerations of molecular structure will, for instance, suggest several possible lines along which a given physiologic substance may be expected to undergo change. These possibilities may be tested by administering various derivatives of the substance in question. Only those which prove on experiment to be fully metabolized, or to yield derivatives in the body identical with those yielded by the parent substance, can be the normal intermediate products of its metabolism. All others may be rejected as not physiologic. Metabolic tissue reactions are catalyzed by enzymes, and, knowing the general properties of these, we have every right to conclude that all reactions may be so catalyzed in the synthetic as well as in the opposite sense. If we are astonished at the vast array of specific catalysts which must be present in the tissues, there are other facts which increase the complexity of things. Evidence continues to accumulate from the biologic side to show that as a matter of fact, the living cell can acquire *de novo* as the result of special stimulation new catalytic agents previously foreign to its organization. It is certain, from very numerous studies made on the lower organisms, and especially on bacteria, that the cell may acquire new chemical powers when made to depend on an unaccustomed nutritive medium. Twort has shown that certain bacteria of the colityphosus group can be trained to split sugars and alcohols which originally they could not split at all. A strain of *B. typhosus* which after being grown on a medium containing dulcite had acquired the power of splitting this substance, retained it permanently,

even after passage through the body of the guinea-pig and cultivation on a dulcite-free medium. Similar observations have been made by Massini and Burri; the latter showed by ingenious experiments that all have the same potency for acquiring it. Yet no one will deny that the appearance of a new enzyme is involved in this adjustment of the cell to a new nutritive medium. We have not, Hopkins says, so much evidence for similar phenomena in the case of the higher animals. The milk-sugar splitting ferment may be absent from the gut epithelium before birth, and in some animals may disappear again after the period of suckling, but here we probably have to do with some simple alternation of latency and activization. But among the protective ferments studied by Abderhalden are, perhaps, cases in which specific individuals appear *de novo* as the result of injecting foreign proteins, etc., into the circulation. Hopkins admits that he has allowed himself to go beyond ascertained facts in dealing with this last point. But once having granted that specific number of reactions, there seems to be no logical reason for supposing that a different class of mechanism can be concerned with any particular reaction.

34. **Ovarian Cyst Exposed Per Vaginam.**—Kemp describes the case of a Tamil Mahomedan woman, aged 30, who was delivered of a full-term fetus on the morning of her admission to a hospital, but actually before admission. The midwife relates that just before the child was born, the membranes being already ruptured, there appeared a membranous, as it seemed, presentation beside the head. The "bag" suddenly protruded out of the vagina and was found to have a pedicle about an inch thick, the "bag" being of the size of a small cocoanut. The child immediately after was born and the placenta came away naturally, but the "bag" remained attached by its pedicle to the inner parts. At the hospital it was seen that a cystic tumor was present in the appearance of a "bag." The pedicle, 2½ inches in length, could be felt to extend to as far as what seemed the anterior wall of the vagina or cervix (an erroneous conclusion), and a very patulous state of the cervix, as it was afterward ascertained to be, gave the impression that a further cystic condition was internally extending beyond the pedicle. The cystic tumor was supported on towels and wrapped around in aseptic gauze dressings to be later more carefully dealt with. Two or three days later, the patient being in the meantime in no pain or distress, and with no temperature or other morbid sign or symptom, the tumor was very closely examined under an anesthetic. It was then recognized as a cyst that had the fimbriated extremity of the fallopian tube of the left side attached to it, showing up on its higher aspect of the cyst close to the attachment of its "pedicle," the latter being only the stretched broad ligament (left side) containing the rest of the fallopian tube.

Medical Press and Circular, London

August 20, XCVI, No. 3876, pp. 187-212

35 Enlargements of Spleen in Children. H. Thursfield.
36 Apex-Treatment for Pulmonary Consumption. W. Ewart.
37 Modification of Cow's Milk for Infant Feeding. D. M. Barcroft.
38 Recent Work on Hysteria. T. A. Williams.

August 27, No. 3877, pp. 213-238

39 Acquired Mental Defect. A. F. Tredgold.
40 Apex-Treatment for Pulmonary Consumption. W. *Ewart.*
41 *Unusual Cases of Hyatid Disease. *H. M. O'Hara.*
42 Some Diseases Which are Communicable from Animals to Man. F. Hobday.
43 Are Microorganisms the Demons of the Ancients? J. H. Alexander.

September 3, No. 3878, pp. 239-262

44 *Radium in Treatment of Malignant Disease. R. Knox.
45 Influence of Ductless Glands on Development. H. Gilford.
46 Infectious Arthritis. *E. L. Cooley.*
47 *Ergot and Its Preparations. F. H. Carr and H. H. Dale.

September 17, No. 3880, pp. 309-332

48 Functional Disorders of Heart. R. O. Moon.
49 *Experimental Observation on Repair of Fractures and Influence
on It of Various Operative Procedures. E. W. H. Groves.
50 Syphilitic Diseases of Joints and Bones in Childhood—Their Differential Diagnosis from Medical Standpoint. S. A. Owen.
51 Diverticula of Large Intestine R. W. Murray.
52 *New Method for Treatment of Bacterial Infections (Modification of Vaccine Treatment). N. F. Surveyor.

41. **Unusual Cases of Hyatid Disease.**—O'Hara cites cases of hydatid at the back of the eyeball, hydatid on the brain, hydatid on the left lung implicating the pericardium, spontaneous fracture of the humerus caused by hydatid cyst in the shaft of that bone, hydatid in the jawbone simulating *actinomycosis,* hydatid in the apex of the right pleura simulating aneurysm of innominate artery, hydatid in the posterior surface of the liver pressing on the head of the pancreas, simulating disease of that gland and hydatid at the base of the lung causing laryngitis.

44. **Radium in Malignant Disease.**—The practical conclusions which Knox deduces from his consideration of the value of radium in the treatment of malignant diseases are: 1. In all cases of early cancer the operative method is undoubtedly the best; it is quicker, safer, and offers the best prospect of a cure. 2. Radium is a useful adjunct to the treatment of all cases, first as a prophylactic after operation, and, failing operation, the next best method we possess. It must, however, be stated that Roentgen rays are in selected cases quite as useful as radium. 3. In cases which refuse operation or are for other reasons not suitable for operation, radium is a useful remedy. 4. In inoperable cases, radium may help to render the case operable; and, failing that, is undoubtedly useful as a palliative measure.

47. **Ergot and Its Preparations.**—The authors propose a revision of that section of the British Pharmacopeia relating to ergot, and indicate the following changes: 1. The present Extractum Ergotae to be abandoned and, if necessary, a soft total extract made with 60 per cent. alcohol acidified with citric acid, substituted for it. 2. The fluid extract of the United States Pharmacopei.., made with 49 per cent. alcohol, containing 2 per cent. of acetic acid, should take the place of Extractum Ergotae Liq. 3. The Injectio Ergotae to be abandoned and suitable salts of ergotoxin, either alone or combined with the active amines, Ergamine and Tyramine, to be employed in place of it. 4. The adoption of a liquid extract such as that described would render the tincture unnecessary, but such if retained should be made by percolation with 60 per cent. alcohol without ammonia.

49. **Repair of Fractures.**—Groves holds that screws which merely bite into the side of the bone will rapidly loosen by a process of bone absorption, if they are subjected to much tension. They are therefore unsuited for the operative treatment of fractures. Absolute fixation of fractured ends, he believes, is conducive to good repair. The only way in which fractures can be firmly united by plates is by the use of pins, screws and nuts which perforate the whole thickness of the shaft. Great mobility of the ends of a fractured bone is likely to produce a false joint, especially in the case of a single bone like the femur. Marked mobility of the ends of a fractured bone cause a great excess of callus. Metallic *magnesium* is absorbed in a bone and causes great callus excess. Indirect methods of fracture fixation give the most ideal results, and this is the only method possible when dealing with compound and comminuted cases. Groves states that the periosteum has no power of forming callus or new bone, although it is of great value in serving as the chief blood-supply to the callus and in limiting its extent. Active callus and bone formation always occur from the broken surface of the bone and every small fragment acts as a center from which new bone growth may take place.

52. **Treatment of Bacterial Infections.**—The method as adopted by Surveyor is to take a measured amount of pus and dilute it with varying amounts of normal saline, so as to get definite dilutions of the toxins present in the pus. This dilution is used for injections. The method was found to be particularly applicable to certain cases that showed a large number of various organisms in smears of pus obtained with all bacteriologic precautions, none of which, however, could be made to grow in the test-tube. The material in such cases was mostly foul-smelling, although taken from unopened abscesses. Various dilutions of the pus (from 1 in 10 to 1 in 600) have been tried, and it was found that a dilution of 1 in 50 is suitable for most cases of staphylococcic infection and

1 in 100 for streptococcic infection. Counting the number of bacteria injected for the purpose of standardization, as is done in the case of ordinary vaccines, is not applicable here, as the disintegrated corpuscles and other débris interfere with the counting process; nor is this necessary. The strength of the "autoxin" can be fairly definitely adjusted by the amount of dilution used.

Archives Générales de Chirurgie, Paris

August VII, No. 8, pp. 897-1024

53* Operative Treatment of Hydrocele. Vautrin.
54 Causes and Treatment of Cholelithiasis. L. Delrez.
55 Salpingitis in Virgins. Fructus.

53. Hydrocele of the Vaginal Tunic of the Testicle.—Vautrin has applied in eighty-eight cases since 1890 his method of eversion of the tunica vaginalis, and states that there has been no recurrence in any instance except in one of his first cases. For ordinary hydrocele, simple eversion is enough, drawing out the testicle while allowing the vaginal tunic to retract and fold back on the cord; it is then fastened to the infundibuliform sheath of the cord with three stitches of silk thread, one at the back, at the posterior commissure of the opening in the vaginal tunic, the others on each side. By this means the vaginal tunic exposes its other side to the testicle, and there is hence no possibility of recurrence of the hydrocele from the same mechanism as before. Vautrin's experience, however, has demonstrated that it is best to excise the entire fibrous sac and the vaginal tunic with it when the tissues have become thick and hard, forming a hard shell. In less advanced stages he partially resects the vaginal tunic before doing the eversion, and commends these three types of the technic as adapted for all the various conditions that may be encountered.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

September, II, No. 9, pp. 97-144

56 *Spontaneous Torsion of Sound Fallopian Tube. M. Auvray.
57 Extra-Membranous Pregnancy; Two Cases. Brouha.

56. Torsion of the Sound Ovary or Tube.—Auvray reports a new case of spontaneous torsion of the sound fallopian tube. In the six cases which he has compiled the torsion involved both tube and ovary in two cases, once the tube alone, once the ovary alone, and in Cassidy's case the ovary, the tube and the broad ligament were all included in the torsion. In four of the total six cases the mistaken diagnosis of appendicitis had been made. The effect of the torsion is generally such that the adnexa on that side have to be removed. In the case here reported the torsion had evidently occurred very gradually; the patient had complained for two years of occasional pains in the right iliac fossa. The pains gradually increased in intensity until, possibly under the influence of menstrual congestion, the tube became twisted twice around with all the symptoms of acute strangulation.

Bulletins de la Société de Pédiatrie, Paris

June, XV, No. 7, pp. 337-412

58 *Cessation of Uncontrollable Vomiting in Infant when Fed with Highly Sweetened Milk. G. Variot.
59 *Convulsions with Acute Encephalitis. H. Triboulet, R. Debré and Godlewski.
60 Tardy Rachitis with Osteomalacia and Tetany. E. Apert and Lemaux.
61 *Splenic Anemia; Recovery. (Deux cas d'anémie grave, splénomégalique et pernicieuse, guéris.) H. Barbier.
62 Improvement under Abbott's Method of Treating Curvature of the Spine. (Scolioses graves traitées par la méthode d'Abbott.) Lance.
63 Cure under Radiotherapy of Pigmented Nevi. (Traitement des taches de vin.) A. Weil.
64 *Operative Treatment in Infantile Paralysis. (Les interventions ostéo-articulaires dans la paralysie infantile.) Barbarin.
65 *Albumin-Milk: Dangers of Lack of Sugar in Infant Feeding. (Essais sur le lait albumineux. Les dangers de la privation du sucre chez le nourisson.) P. Nobécourt and G. Schreiber.
66 The So-Called Mongolian Blue Spot. (La tache mongolique dans l'état de São-Paulo, Bresil.) C. Ferreira.

58. Sugar in Infant Feeding.—Variot adds another to the cases previously published by him in which uncontrollable vomiting stopped after the infant was fed on highly sweetened condensed milk. This infant was nine months old and weighed only half the normal. The vomiting had been constant for a long time, but it stopped at once when the much diluted, sweetened condensed milk was given. The mother changed afterwards to a condensed milk that was not sweetened, and the vomiting reappeared but stopped again on resumption of the highly sweetened milk. In three months the child was thriving and was of approximately normal size for its age. When first seen the stomach was found very much dilated, both stomach and colon greatly distended with air; infants suffering from lack of nourishment generally swallow air in large amounts.

59. Spasmophilia with Acute Encephalitis. — The case reported presents a new argument in favor of the brain and nerves, instead of glandular secretion, being responsible for spasmophilia in a certain proportion of cases.

61. Splenic Anemia.—The anemia seemed to be of a severe, pernicious type in the two cases reported, and was accompanied by great enlargement of the spleen. The patients were children of 10 and 3 and both recovered. The first had a tendency to hemophilia and was given calcium chlorid, beef marrow, arsenic and iron, while the spleen was exposed to the direct sunshine twice a day for fifteen minutes. In the second case there were traces of rachitis and of an epidemic suppurative affection of the gums. This child also recovered under iron, arsenic, iodid and fresh air. The cases teach that the outcome depends more on the cause than on the degree of the anemia.

64. Operative Treatment of Infantile Paralysis.—Barbarin has obtained excellent results with transfixion of the bones to induce arthrodesis in treatment of crippled joints from epidemic poliomyelitis—Veau has always found that exposing the surfaces of the articulating bones was sufficient to ensure their growing together, so that transfixion is superfluous, he insists, to induce arthrodesis in these cases.

65. Sugar in Infant Feeding.—Nobécourt and Schreiber gave the Finkelstein albumin-milk to twenty-one infants and state that fairly satisfactory results were obtained in only two cases; no benefit in five, while fourteen of the children showed a notable aggravation of their condition on this food. They insist that the lack of sugar, which is one of the special features of this albumin-milk, is directly injurious and that there is no evidence to prove that sugar is harmful in infant feeding. They add that Finkelstein recognized this later, and now sweetens the albumin-milk after from six to twenty-four hours, commencing with 3 per cent. They add that there does not seem much logic in suppressing the lactose of the milk to replace it with cane sugar or malt sugar in this way.

Journal de Médecine de Bordeaux

September 7, LXXXIV, No. 36, pp. 573-588

67 Metabolism of Fats. (Origine des graisses de l'organisme—non compris la digestion—et leur dégradation.) L. Chelle.

September 14, No. 37, pp. 589-604

68 Prognosis of Subacute Tuberculosis in Infants. R. Cruchet.

Presse Médicale, Paris

September 6, XXI, No. 73, pp. 729-740

69 Cultivation of Virus of Rabies. (Etudes culturales sur le virus de la rage.) H. Noguchi (New York).
70 *Treatment of Furunculosis. A. Mauté.

September 10, No. 74, pp. 741-748

71 Contusion of the Abdomen. E. Kirmisson.
72 Behavior of Other Lung with Therapeutic Pneumothorax. (Comment se comporte le poumon "opposé" dans le traitement de la tuberculose pulmonaire par le pneumothorax artificiel.) R. Burnand.

70. Treatment of Furunculosis.—Mauté warns against more than a minute puncture to permit aspiration of the contents of a furuncle. He also warns against large dressings as any contact or rubbing is liable to lead to new inoculations of the staphylococci on the skin even at some distance from the furuncle. He applies the smallest dressing possible, held in place with plaster strips. The skin should be disinfected with camphorated alcohol or ether or tincture of iodin, but not much can be hoped from this as the sterilization is only superficial and does not reach the germs deep in the hair follicles, etc. General tonic measures are indispensable to augment the resisting powers, but the main reliance is on vaccine therapy, and he thinks that the dosage of the vaccine is the key to successful treatment of furunculosis. Incorrect dosage is liable to sensitize, rather than to cure, the patient. Other drugs are seldom needed, unless possibly in inveterate cases of folliculitis dilute sulphuric acid as recommended by J. Reynolds, from 60 to 120 drops a day in a large glass of water at meals. The necessity for curing furuncles and not letting crops develop has been impressed on Mauté anew recently by a case of abscess in the kidney, three cases of abscess in the prostate and two of perinephritic abscess, all following after a single furuncle.

Revue Pratique d'Obstêtrique et de Gynécologie, Paris

August, XXI, No. 8, pp. 225-252

73 Chorio-Epithelioma. A. Polosson and H. Viollet.
74 *Viability of the Prematurely Born. F. Dervieux.
75 Uncontrollable Vomiting in Connection with Retroversion of Gravid Uterus and Cured by Correction. A. Herrgott.
76 The Hammock Sitz-Bath and Irrigation of the Vagina. Alquier (Vichy).
77 *Turpentine Tampon for Puerperal Endometritis. (Du tamponnement à l'essence de térébenthine pure dans l'endométrite puerpérale.) P. Delmas.

74. **Viability of the Prematurely Born.**—Tissier has recently reported that an infant born at the sixth month of pregnancy lived for two months; it weighed 900 gm. at birth. Budin has reported a case in which an infant was born nearer the fifth than the sixth month of the pregnancy, weighed 650 gm., and lived for a month. Leclercq reported last year the survival for twenty-one hours after birth of a prematurely born infant that weighed 670 gm. and measured 25 cm., or less than 10 inches, and the anatomic findings corroborated the history of the case as a birth at four and a half months after conception. Dervieux cites these cases to show the necessity for revision of the French laws in regard to inheritance of property and paternity; they specify 180 days as the limit for viability and possible paternity.

77. **Turpentine in Local Treatment of Puerperal Fever.**—Delmas calls attention to the excellent results he has obtained in a number of cases of puerperal endometritis with turpentine. The long strip of gauze *imbibée à refus*, as he says, with the oil of turpentine is packed in the uterus, the outer end of the strip left in the vagina, the walls of the latter protected with an isolating sheet of cotton, and the vulva with petrolatum. He leaves the strip of gauze or wick in the uterus for twenty-four hours. The almost elective action of turpentine on the streptococcus is supplemented by the intense afflux of leukocytes which it induces, and by the general antiseptic action of the turpentine absorbed by the gaping vessels in the uterus. Its absorption is rendered evident by the odor of the turpentine in the urine for several days.

Berliner klinische Wochenschrift

September 8, L, No. 36, pp. 1645-1692

78 Bile Peritonitis without Perforation of Bile Passages. (Die Pathogenese der galligen Peritonitis ohne Perforation der Gallenwege und die Pigmentophilie der Nekrosen.) M. Askanazy.
79 Isolated Patch of Amyloid Degeneration in Urethra of Healthy Man of 27. G. Herxheimer and A. Reinhart.
80 Abortive Treatment of Syphilis. G. Zürn.
81 Paralysis of Motor Trigeminal Nerve in Tabes. H. A. Lubbers.
82 *Clinical Importance of Neuralgia; Spinalgia. G. Zuelzer.
83 *Serotherapy with Pregnancy Dermatitis. F. Wolff.
84 Mental Disturbances during Pregnancy. (Psychosen während der Schwangerschaft.) C. A. Passow.
85 Pathologic Findings, etc., in Fossil Animals. E. Hennig.

82. **Neuralgia in the Trunk.**—Zuelzer warns that acute and chronic rheumatism of the vertebrae, tuberculous processes in the bronchial lymph-nodes and disturbances in the spine of the same nature as those in the foot from flat-foot—these three affections may induce sharp pains—actual spinalgia, simulating various other troubles and liable to be misinterpreted and mistreated. The pain and hyperesthesia with these affections are always bilateral. The patient may not be aware of this bilateral character—usually not—but it can be determined by delimiting the area with the needle and studying the character of the pain which is always typical of true neuralgia. The zones of hyperesthesia are abnormally sensitive to contact, to pressure and to temperature. The "pressure points" are also excessively tender. With insufficiency of the spine there may be pains lower than with tuberculous processes in the bronchial lymph-nodes, and the patient may locate the pains in the stomach, intestines or kidneys. Investigation with the needle will show, however, that although the patient complains only of one side, there is in reality a sharply defined bilateral intercostal neuralgia. In two cases of the trouble in the spine similar to flat-foot, the pains predominated on the right side and both patients had been operated on for supposed gall-stones but none was found. One had been operated on twice and a third operation was contemplated as the persisting pains convinced the surgeon that he must have overlooked the gall-stone. The patient, a woman of 42, had had 120 attacks but no jaundice or fever. To avoid bringing on the attacks she had eaten less and less, and was bed-ridden and much debilitated. Zuelzer could find nothing to indicate gall-stones; the liver was not enlarged, while the painful area was that innervated by the seventh to tenth thoracic nerves; corresponding to this the spine at the ninth and tenth thoracic vertebrae was extremely sensitive to pressure, and there was a pronounced tendency to curvature. She was fitted with an orthopedic corset and almost at once she was freed from all disturbances. Another patient was a man who had been operated on for supposed duodenal ulcer but no ulcer was found, and the typical pains of the vertebral insufficiency persisted as before.

In three cases of acute rheumatism of thoracic vertebrae the pains and objective findings were the same as with vertebral insufficiency, except that the anterior branch of the intercostal nerve in all three cases did not seem to participate in the hyperesthesia. Under treatment for rheumatism, the neuralgia disappeared. These three cases confirm the assumption that the peculiar circumscribed neuralgia in such cases is not an imaginary hysteric hyperesthesia but true intercostal neuralgia. The vertebrae in the neck are more liable to subacute or chronic rheumatism, and here also the neuralgia, felt by the patient on one side only but shown by the needle tests to be bilateral, gives the clue to the diagnosis. The location of these root neuralgias corresponds to the eruption of herpes, and neuralgia can be positively excluded if the needle fails to reveal a corresponding area of hyperesthesia in the skin.

83. **Serotherapy in Pregnancy Dermatitis.**—Wolff reports a case of severe pruritus and dermatosis for which the pregnancy was evidently responsible and which all subsided at once after intragluteal injection of 10 c.c. of inactivated serum from a healthy woman delivered two weeks before.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 30, XLIII, No. 35, pp. 1089-1120

86 *Acute Dilatation of the Stomach. R. Stierlin.
87 Transplantation of Bones and Joints. (Ueber Transplantationsfragen.) F. L. Dumont.

September 6, No. 36, pp. 1121-1152

88 Albumin-Milk in Infant Feeding. (Erfahrungen mit der Finkelstein'schen Eiweissmilch im Basler Kinderspital.) M. Schwyzer.

September 13, No. 37, pp. 1155-1184

89 *Distilled Water in Medical Practice. A. Barladean.

86. **Acute Dilatation of the Stomach.**—Stierlin's patient was a boy of 10 with acute dilatation of the stomach following overloading the stomach with baked apples. He found that the child had spontaneously assumed the knee-elbow position to obtain relief. A characteristic feature of the vomiting with acute dilatation is that small amounts are repeatedly vomited, no single large amounts. The intolerable thirst compels the patient to keep drinking copiously, which keeps up the morbid condition. The pulse is rapid but the temperature is normal or below. The stomach in this case failed to recuperate and finally a gastro-enterostomy put an end at once to all disturbances. The trouble was explained in this case by the

discovery of a few adhesions and two cheesy lymph nodes in the mesentery of the jejunum, predisposing to the dilatation on any dietetic indiscretion.

89. **Distilled Water.**—Barladean comments on Wechselmann's discovery that certain toxic effects of salvarsan could be avoided by using freshly distilled water. Ordinary distilled water, he found, contained quantities of bacteria and, although killed by boiling the water, the dead bodies of the bacteria caused disturbance in intravenous injection. Barladean cites the investigations of a number of other workers in this line: Müller examined sixteen specimens of distilled water from the stock of different drug stores and found only two that contained less than 100,000 germs, two containing over 700,000, and one 6,050,000 per c.c. Barladean quotes others to show that not only bacteria but alkali from the glass and metals from the retort, etc., may add to the contamination of distilled water. The influence of even minute amounts of these may be harmful. We know that a thousand millionth part of copper is fatal to a certain fresh water plant, the *Spirogyra*, and another plant, the *Vaucheria*, is even more sensitive to copper ions. He remarks that distilled water is usually kept in large bottles and these bottles can never be thoroughly cleansed. The German Pharmacopeia's requirement for distilled water is that 100 c.c. on evaporation should not leave more than 0.001 gm. residue. This amounts to 0.01 gm. in a liter, and the distilled water is thus merely a dilute solution (1:100,000) of unknown substances. This contamination, Barladean insists, may modify the effect of drugs, even those taken by the mouth. The chemical tests should be supplemented, he declares, by biologic tests with the Spirogyra (to test for metal ions), by bacteriologic tests, as for potable waters, and by testing the electric conductibility of the distilled water.

Deutsche medizinische Wochenschrift, Berlin

September 11, XXXIX, No. 37, pp. 1769-1816

90 *Weak Heart. (Die Pathologie der Herzschwäche.) H. E. Hering.
91 Serodiagnosis in Tuberculosis. (Untersuchungen mit Hilfe des Abderhaldenschen Dialysierverfahrens bei Lungentuberkulose.) A. E. Lampé.
92 Regenerating Capacity of Mammalian Thymus. (Natur der Thymusdrüse nach Untersuchungen über ihre Regenerationsfähigkeit bei den Säugetieren.) F. Fulci.
93 *Importance of Levulose Test of Liver Function. (Zur Funktionsprüfung der Leber.) H. Strauss.
94 Relation between Experimental and Human Syphilis. A. Buschke.
95 *Internal Treatment of Exophthalmic Goiter. W. H. Becker.
96 Diathermia. (Experimentelle und therapeutische Erfahrungen mit Diathermie.) H. Dreesen.
97 *Tetanus Neonatorum with Recovery. G. Wolff.
98 Simple Quantitative and Qualitative Fermentation Test of Sugar in Urine. A. Gause.
99 Tests of Perception of Light and Colors. (Zur Lehre der Licht- und Farbenwahrnehmung.) S. Loeb.
100 *Treatment of Chronic Frontal Sinusitis. (Stirnhöhleneiterung.) J. Pick.
101 Trachoma in Palestine. E. Auerbach.

90. **Weak Heart.**—Hering's article was one of the addresses at the recent International Medical Congress. He reviews the data on which he bases the conclusion that weakness of the heart means not only less contracting power but less power to generate impulses or transmit them. He states that the subjective symptoms of weak heart have been too much neglected, and that sensations originating in the heart can often be rendered objective by determination of the ultra-sensitiveness of certain areas of the skin. The jugular pulse is a valuable sign of functional disturbance of the heart but it does not testify to tricuspid insufficiency as formerly believed. The dilatation of the heart which results from weakness, he says, must be called an incompensatory dilatation, in contrast to the dilatation which is due to efforts at compensation. If we accept for the tonus of the myocardium the ability to keep the heart of a certain length, then this tonus is subnormal in dilatation of both types. Consequently, hypotonicity of the myocardium cannot be accepted as always the direct result of weakness of the heart muscle.

In examining the heart it must not be forgotten that there is never a single cause; every process has a plurality of contributing factors. The symptoms most important for a rapid and certain diagnosis in general practice are perpetual irregularity of the heart action; dropping out of the auricle and ventricle systole; dropping out of the ventricle systole; alternating heart action, and dissociation. He calls these the economic symptoms of weakness of the heart. The incompensatory dilatation of the heart does not belong in this group of economic symptoms as its detection requires certain co-symptoms. Even in studying an economic symptom, Hering adds, the physician should never be content with this alone but must search out all possible co-symptoms as otherwise his judgment of the functional disturbance of the heart will be too one-sided.

93. **Tests of Liver Function.**—Strauss states that continued research and further experience have confirmed in every particular his assertions twelve years ago in regard to the importance of alimentary levulosuria as a sign of defective functioning of the liver. Galactose is also suited for the test, but the dose best adapted for the purpose seems to be 30 gm., while the proper dose of levulose is 100 gm. Each test is made in the morning on the fasting stomach and the elimination in the next six hours is the criterion. He gives tables showing the findings of the test at a number of different clinics. In 127 cases of cirrhosis of the liver the levulose test gave positive findings in 33 per cent.; in 70 per cent. of twenty-seven cases of catarrhal jaundice; in 62.5 per cent. of thirty-two cases of jaundice from obstruction of the common bile duct; in 75 per cent. of twelve cases of jaundice from syphilitic lesions, and in 38 per cent. of forty-two cases of tumors. On the other hand, the findings were positive only in 14.8 per cent. of 175 cases in which the liver was presumably sound. The galactose test, on the other hand, seems to be more sensitive in cases of functional disturbance of the liver, of nervous origin. The latter test has not yet been applied with uniform technic in a sufficient number of cases for a true estimate of its value.

95. **Internal Treatment of Exophthalmic Goiter.**—Becker has recently reexamined seven patients who were cured by internal treatment several years ago. He found that the benefit had been permanent and all seem to be in good health. These were the most interesting cases among sixty-one patients with exophthalmic goiter out of over 40,000 patients of all kinds admitted to the hospital at Giessen since 1890. The experiences related confirm the wisdom of a few months of conservative treatment with rest, tonics and specific measures before an operation is contemplated after failure of the above.

97. **Recovery from Tetanus Neonatorum.**—The tetanus developed in the case reported by Wolff in a child 9 days old, and benefit was derived from serotherapy and large doses of chloral, with final complete recovery. The tetanus antitoxin was injected in the vicinity of the umbilicus at first, the next day subcutaneous, and the third day half subcutaneous and half intramuscular. The total dosage was 300 units. The chloral was given by the rectum, 0.5 gm. as the daily dose. This is larger in proportion than the maximum dose for adults; one day this dose was given at each of the three feedings. Feeding was possible only through the stomach tube with the child under the profound influence of the chloral. The eighth day no chloral was given, only 0.5 gm. bromid, but the chloral had to be resumed again the next day in order to feed the child. By the eighteenth day the dose had been gradually reduced to 0.25 gm. chloral, and by the twenty-seventh day natural feeding could be resumed and all drugs were dropped. The child recovered rapidly and seems normal. Recovery from tetanus neonatorum is so rare that Wolff thinks this method of treatment which protected the child from exhaustion from the convulsions while permitting adequate nourishment certainly was instrumental in the cure.

100. **Treatment of Chronic Frontal Sinusitis.**—Pick has been remarkably successful in treating frontal sinusitis of long standing by twenty-minute sittings every day in negative atmospheric pressure supplemented by inhalation of an epinephrin spray. The negative pressure in the air passages aspirates the contents of all communicating cavities, and relieves congestion in them.

Jahrbuch für Kinderheilkunde, Berlin

September, LXXVIII, No. 3, pp. 249-372

102 Melena Neonatorum. E. Lövegren.
103 *Etiology of Scarlet Fever. M. Kretschmer.
104 Scaphoid Scapula not a Sign of Constitutional Inferiority. (Skaphoide Form des Schulterblattes.) M. Brückner.
105 Fatal Case of Recurrent Acute Invagination of the Small Intestine. P. Schneider.
106 *Influence of Summer Heat on Infant Mortality. H. Rietschel.
107 *Diagnostic Value of the Copper-Coin Sound. (Diagnostische Bedeutung des Klanges einer Kupfermünze—signe du sou—bei Lungenentzündung und Pleuritis bei Kindern.) S. Ostrowski.
108 Method of Testing the Skin Reaction to Chemical Stimulation. (Die Prüfung der Hautreaktion auf chemische Reize.) J. H. Schultz.

103. **Etiology of Scarlet Fever.**—The cause of scarlet fever has never been definitely determined and the attempts to transmit it to monkeys have met with only very limited success. Kretschmer believes that it is a streptococcic infection, though this assumption has not been proved or disproved with certainty. Many clinical facts seem to prove that a special susceptibility on the part of the patient is an important factor in the development of scarlet fever, and that it may be regarded as an anaphylactic reaction to a streptococcic infection. The question of nutrition in the prophylaxis and treatment of scarlet fever deserves more attention than it has previously received. Overnourished and obese children are particularly susceptible to the disease. In treatment a mixed diet is preferable to a milk diet.

106. **Summer Heat and Infant Mortality.**—Rietschel maintains that, aside from its indirect effect in spoiling the milk, the high temperature in summer has a direct effect on the child's health. This may be acute, manifesting itself in coma, cramps, fever, diarrhea and vomiting, or it may be chronic, lowering the child's resistance and bringing about various changes in the organism, such as reducing the fermentative processes in the intestine, affecting the intestinal flora, changing the water content by increased perspiration and thus increasing the danger of skin and other infections. There is likewise danger of overfeeding on account of the child's increased thirst. Clinically we get all kinds of pictures, from acute intoxications to chronic summer diarrhea, with or without infection. To be sure, poverty, lack of fresh air, sunlight and proper care are factors in the production of these diseases, but all these causes exist in the winter also, and the excess of the summer over the winter mortality is to be attributed solely to the effect of heat which aggravates all the other disease-producing agents.

107. **Value of the Coin Sign in Diagnosis.**—In 1898 Pitres described a sign which he had found valuable in distinguishing between pneumonia and pleural exudate. An assistant strikes two copper coins together over the suspected area. The physician listens with one ear over the symmetrical point on the opposite side of the chest and the other ear covered so as not to get the sound of the coins directly. If there is fluid between the two points, the sound will be transmitted with a metallic clang; if there is normal tissue it will be dull, and if the consolidation of pneumonia is present it will be still duller. From a study of his own cases and those reported in the literature, Ostrowski confirms the diagnostic value of this sign.

Medizinische Klinik, Berlin

September 7, IX, No. 36, pp. 1441-1484

109 Pathologic Relations between Nose and Eye. A. Brückner.
110 *Estimation of Earning Capacity in Nervous Conditions. (Zur Beurteilung der Arbeitsfähigkeit bei nervösen Zuständen.) T. Zahn.
111 Pseudosciatica. (Ischiasähnliche Schmerzen bei einem Falle von Adipositas dolorosa und bei einem Falle von partieller Bauchmuskellähmung.) E. Plate.
112 Treatment of Scoliosis by Abbott's Method. S. Peltesohn.
113 Vertical Handwriting Easier to Read. (Ueber Lesen bei vertikaler Stellung der Zeilen.) R. Dudek.
114 *Electric Treatment of [illegible] Goiter. (Zur Behandlung des Morbus Basedo[illegible]
115 Temperature of Diseased Joints. ([illegible]verhältnisse erkrankter Gelenke.) E. Weisz.
116 Dietetic Treatment of Retention of Sodium Chlorid without Dropsy. (Die anhydropische Chlorretention vom Standpunkte der Therapie.) J. L[illegible].
117 Sugar Content of Blood [illegible] Diabetes on Different Diets. (Blutzuckerwerte der verschiedenen Diätformen bei Diabetes.) E. Lampé and H. Strassner.

110. **Estimation of Working Capacity in Traumatic and Other Nervous Affections.**—Zahn discusses the bases for a medical certificate in the question of workmen's compensation, insisting on the extreme caution necessary. Among the points he brings out is that the question as to the amount of credence that can be given the patient's statements is not a medical question. In many cases a true estimate of conditions can be obtained only by others' spying on the individual elsewhere. Previous records of hospitals and insurance companies affecting the individual may often prove useful. The fact that the individual does not go to his usual place of employment is often assumed as testimony that he is unable to work. The nervous symptoms should be noted, when possible, while the patient does not know that he is being observed. In examining the patient, also, the different nervous disturbances should be studied while apparently studying some other nervous manifestations. Irregular heart action and distribution of the blood, relaxation of the muscles, local swelling and general loss of weight are independent of volition. To this group belong further persisting insomnia, irritability, vertigo, paralysis and contracture. If a disturbance in the motor or sensory sphere grows less when the attention is diverted, simulation is not always responsible for this; hysteria may show such phenomena; even severe paralysis is liable to become attenuated under these conditions. There may be a mental factor in pain from some organic lesion, and the pain may thus let up to a certain extent as the attention is diverted. Zahn has frequently encountered cases of severe constitutional neurasthenia with extreme motor weakness, in which certain automatic movements, such as smoothing the forehead, were done with comparatively little disturbance; in other cases the speech became normal during emotional stress. When the disturbances are predominantly subjective, the medical certificate as to the working capacity had better be conditional.

114. **Electric Treatment in Exophthalmic Goiter.**—Günzel describes his method of applying the intermittent electric current (Leduc's current) in treatment of exophthalmic goiter, saying that the results have been excellent in nearly every case and surprisingly fine in a number. He bases the treatment on the assumption that the trouble is the result of excessive irritability in the sympathetic system. This high frequency interrupted current reduces the excitability of nerves and thus benefits in neuralgia, migraine, angina pectoris, lumbago, sciatica and rheumatoid pains even with a ten or fifteen minute application. This current is able to induce in animals a total general anesthesia. It also has an attenuating and curing influence, Günzel says, on all nervous functional disturbances and this effect is particularly marked in exophthalmic goiter. The positive fork-shaped electrode fits over the goiter and sides of the neck, while the negative is applied to the chest or back of the neck. He states that the nervous excitement, palpitations, insomnia, headaches and rapid breathing subside in the first five to eight sittings; with nine or twelve the goiter and exophthalmos are materially reduced and by the end of the course of twenty or thirty sittings the disease, if not of too long standing, is essentially improved or cured.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

September, XXXVIII, No. 3, pp. 247-382

118 A Case of Simultaneous Pregnancy in Both Tubes. (Gleichzeitige Schwangerschaft beider Tuben.) F. Unterberger.
119 Deficient Absorption as a Cause of Hydramnion. (Neue Gesichtspunkte zur Aetiologie des Hydramnion. Hydramnion infolge mangelnder Resorption des Fruchtwassers.) H. Coanier.
120 *Rectal Examination during Labor. J. Schlapoberski.
121 Twenty-Five Years' Experience in Private Obstetrical Practice. H. J. Kreutzmann (San Francisco).
122 *Ligation of the Hypogastric Artery. A. Nikolskij.
123 Hemorrhage and Hematoma of the Ovaries; Six Cases. K. H. Ohman.
124 Mesothorium in Treatment of Cancer. (Das Mesothorium und seine Wirkung auf bösartige Neubildungen.) Wanner and O. Teutschlaender.
125 Case of Solitary Carcinoma of the Liver Cured by Operation. H. Schlimpert.
126 *Caustic Effect of Silver used as a Prophylactic. (Histologische Untersuchung der Aetzwirkung der Prophylaktika.) C. Credé-Horder.

120. **Rectal Examination during Labor.**—Schlapoberski warmly recommends the substitution of rectal for vaginal examination during labor, as thereby all danger of infection is avoided. Midwives should be taught to make the rectal examination and be warned of the danger of the vaginal method. The skull, the fontanel and sutures, and the breech, if presenting, can be palpated through the rectum and also the mouth of the uterus if the edges are thick. If they are exceptionally thin it may not be possible to determine the condition of the mouth of the uterus exactly, but all the information needed in most cases can be obtained. He has had a much smaller percentage of infections since adopting the method.

122. **Ligation of the Hypogastric Artery.**—Nikolskij describes the work of Tichow and Grammatikati at the surgical clinic in Tomsk. They have practiced ligation of the hypogastric artery over a hundred times, in several cases on both sides at once, without any bad effect on the rectum, bladder or other pelvic organs. It is not difficult technically and greatly facilitates pelvic operations by avoiding hemorrhage. The chief indication for which they have used it is in operating on uterine carcinoma which had previously been considered inoperable. By the use of this method and by implanting the ureters into the rectum they can remove a large amount of peri-uterine tissue, the entire bladder and the lower section of the rectum. They have raised the operability of uterine cancer to 77 per cent. with a mortality of 31 per cent. He gives a detailed anatomic description of the conditions that develop when the ligation is performed.

126. **Effect of Silver Preparations Used in the Eyes of Infants.**—Credé-Horder concludes from a series of histological examinations of material from the eyes of dogs and new-born infants that no harm is done by the use of silver preparations as a prophylactic for ophthalmia neonatorum; the conjunctiva alone was affected and that only in a transitory manner. The cornea was not affected at all. He used as high as five drops of a 1 per cent. silver nitrate solution, and also tested other silver preparations, but they seemed to have less effect than the nitrate. He asked a number of directors of obstetrical and infants' clinics if they had ever seen any permanent injury from the use of silver nitrate, and the answer was always negative. Illustrations are given showing his histological findings.

Münchener medizinische Wochenschrift

September 9, LX, No. 36, pp. 1977-2032

127 Combined Local and General Treatment of Syphilis of Central Nervous System. H. F. Swift and A. W. M. Ellis (New York). Concluded in No. 37.
128 Leukemia; Splenocytic Form. (Ueber *eine neue* Leukämie durch echte Uebergangsformen—Splenozytenleukämie—und ihre Bedeutung für die Selbstständigkeit dieser Zellen.) H. Reschad and V. Schilling.
129 Serology in Psychiatry; Retrospect and Outlook. A. Fauser.
130 Differentiation between Spasm and Stenosis of the Pylorus. (Papaverin zur röntgenologischen Differentialdiagnose zwischen Pylorospasmus und Pylorusstenose.) G. Holzknecht and M. Sgalitzer.
131 Technic for Injections of Salvarsan and Neosalvarsan. E. Schreiber.
132 Metabolism in the Insane. (Stoffwechsel der Geisteskranken.) A. Bornstein.
133 *Domestic Animals and Epidemic Poliomyelitis. (Zur Aetiologie der spinalen Kinderlähmung.) J. Bruno.
134 Beriberi. (Fortschritte der experimentalen Beriberiforschung in den Jahren 1911-1913. C. Funk (London).
135 First Report on Biologic Properties of Radium, 1900. Walkhoff (Munich).
136 Tuberculin Treatment not Suited for Out-Patients. (Ueber ambulante Tuberkulinbehandlung.) E. Hartmann.

133. **Domestic Animals and Fowls in Etiology of Epidemic Poliomyelitis.**—Bruno relates that recently infantile paralysis developed simultaneously in two young children on a poultry farm near Heidelberg. The children had never left the yard but a number of domestic animals and poultry had the run of the large yard. A consignment of ducks had been received from a distance shortly before, and one was found dead in the yard the seventh day; seven days later another duck seemed to be paralyzed but it continued to eat; after three days it was killed and eaten. Three weeks after the arrival of the ducks two others developed the same symptoms of paralysis and a week later a third, but this last group of three ducks recovered. None of the forty-seven geese and chickens showed any signs of disease. The two children developed symptoms the same day, the thirty-ninth day after the arrival of the ducks. The entire family complained of feeling ill for several days about the same time, mostly with gastro-intestinal symptoms and light fever; one had in addition severe "rheumatic" pains in the back.

Bruno reports in addition a recent case of a child with manifest epidemic poliomyelitis on a farm where a cow had just previously died with symptoms indicating paralysis, and a paralyzed hen was found a little later. On another farm a goat died with symptoms of paralysis and ten days later an isolated case of infantile paralysis developed in the farmer's family. He urges investigation of the domestic animals in all cases of epidemic poliomyelitis. The assumption that the disease can be transmitted by domestic animals, poultry and dogs—possibly merely carriers—would explain the peculiar spread of the disease in rural districts and afford grounds for effectual prophylaxis, both individual and public. He states that Heidelberg seems at present to be the center of a widespread epidemic of Heine-Medin's disease, although the cases are not very numerous.

Therapeutische Monatshefte, Berlin

September, XXVII, No. 9, pp. 617-684

137 *Cataract. (Der Stand der modernen Starforschung.—Genese und Therapie.) H. R. Pagenstecher.
138 *Varicose Veins. (Chirurgische Behandlungsmethoden der Krampfadern.) H. v. Tappeiner.
139 *Treatment of Nervous Dyspepsia. (Zur Psychotherapie funktioneller Magenstörungen.) H. Curschmann.
140 Electric Treatment of Obesity, Etc. (Anwendung der Diathermierung nach Bergonié und im Vierzellenbad.) A. Schnee.
141 Reform in the Advertising of Medicinal Preparations. (Arzneimittelkommission und Industrie.) (Schaden im Arzneimittelverkehr.) (Die Ausdehnung des Rezepturzwanges, die chemisch-pharmazeutische Industrie und die Tagespresse.) W. Heubner.
142 Necessity for Written Directions. (Verordnung stark wirkender Arzneimittel.) W. Heubner.
143 New Regulations in Regard to Trade-Marks. (Entwurf eines neuen Warenzeichengesetzes.) W. Heubner.

137. **Cataract.**—Pagenstecher says that progress of late in regard to cataract has been mainly from experimental research, and he states that the only effectual treatment is still by operative measures. He reviews the various technics and the indications, saying in conclusion that the greatest improvement realized to date in regard to cataract is the continued improvement in eye-glasses. Great progress has been realized in this line.

138. **Operative Treatment of Varicose Veins.**—Tappeiner compares the different methods in vogue and the results, citing a number of articles which have been summarized recently in these columns. At the surgical clinic at Greifswald, where he is assistant, he says they make a point of removing the entire long saphenous vein by Babcock's technic (See THE JOURNAL, 1910, lv., 210). Smaller and larger nodules and varices are removed separately through small incisions when necessary. If Babcock's method is not practicable, Madelung's technic is applied; that is, the enlarged veins are removed in sections from three long incisions. Only in the rarest cases was it found necessary to apply the spiral incision. So far as possible the veins are not attacked until any existing ulcers have healed over under bed-rest and keeping the leg raised, with other measures as needed to ensure that the operation on the varicose veins will be in an aseptic territory.

139. **Treatment of Functional Stomach Disturbances.**—Curschmann warns that there is danger now of going to the opposite extreme and accepting a duodenal or gastric ulcer in every case of stomach trouble when in fact the disturbance may be purely functional. Too much reliance on the Roentgen findings is liable to lead to needless operative interference in some cases, but the assumption of a peptic ulcer as the result of nervous spasm is especially justifiable with stomach disturbances in chlorosis or with habitual vomiting in young girls or women. In differentiating a gastric ulcer from a gastric nervous trouble, signs of a neurotic predisposition by no means testify against a possible ulcer. Bergmann found

a neurotic tendency evident in fifty-eight of sixty ulcer patients. In nearly every instance the neurotic trouble was in the vegetative nervous system, mostly in the sense of vagotony; that is, excessive irritability of the vagus nerve. The local ischemia from spasmodic contraction of the vessels amply explains the development of a peptic ulcer and its inability to heal.

But, notwithstanding all these undoubted organic cases, Curschmann insists that we must not fail to recognize that there are some purely nervous dyspepsias which must be treated as a neurosis. The trouble in these cases is the reaction of the digestive apparatus to a nervous trouble with a pronounced mental factor, a psychoneurosis. Either stomach or intestines may be involved, but the mental-nervous trouble affects most frequently the stomach almost exclusively. He calls attention in particular to the cyclic type as a particularly frequent and important form hitherto generally overlooked.

Periodically recurring forms of mental and nervous disturbances are often disregarded by practitioners as they so frequently lack the time or do not feel the necessity for mastering psychiatric matters which have come up "since their day." This is especially to be regretted—particularly from the therapeutic standpoint—in respect to these periodically returning psychoneuroses. Curschmann has encountered many cases of cyclothymia in which the complaints and the entire case-history bore exclusively on digestive disturbances. The recurring anorexia and rebellious constipation had been treated with course after course of lavage of the stomach, oil enemas and dieting. That these measures must necessarily fail is obvious. The mind, not the digestive tract, is what requires treatment. Careful study of the history of the case will bring out the cyclic character of the nervous trouble and its mental basis, and warn against these unnecessary measures.

Curschmann adds that the newer diagnostic measures are having such a vogue that the most elementary basis for the diagnosis, the previous history of the case, is being culpably neglected by many modern practitioners. He describes some cases which illustrate the importance of the somatic diagnosis for psychic treatment. The first patient was a woman of 46, unmarried, with long recurring attacks of constant vomiting. Anacidity and lactic acid were found in the stomach content after a test breakfast, and the assumption of cancer seemed to be justified. From a child she had had a "weak stomach" and periodical headaches. The advised exploratory laparotomy was refused, and the condition began to improve. After a month or so Curschmann gave her a test "appetite meal," allowing the patient to eat her favorite dish. The stomach content after this test-meal showed approximately normal findings. The case was evidently one of recurring stomach equivalents of migraine. The vomiting kept up after the headache subsided or occurred in place of the migraine. These equivalents of migraine have to be differentiated from cholelithiasis and other colics of the stomach and tabetic crises. The history of the case will reveal the transformation of the original periodic, one-sided headache into the stomach equivalent, the vomiting center having been trained to react to slight irritation. Curschmann discussed her case with the patient, explaining the above, and insisting that there was no actual stomach disease and that she could eat according to her appetite. He sought to persuade her according to Dubois' principles of persuasion psychotherapy, and finally did convince her that she had no need to fear trouble from her stomach, and almost at once she was cured. She has been free from all disturbances for three and a half years now to date, except that she still has occasionally a mild sick headache.

Curschmann emphasizes the importance of a test "appetite meal" in the estimation of the anacidity of the morbidly nervous. The findings may confirm the fickleness of the gastric secretion in these circumstances. The assumption of the benign character and the origin in the mind of the disturbances are confirmed by the results of mere psychotherapy, reasoning with the patient, and proving to him by the actual stomach findings the harmlessness of the functional disturbances and that his stomach is not so weak as he (and, no less, his attending physician) had supposed. The food must be served in an appetizing form, the stomach secretion reacting most energetically to food which the patient enjoys.

Persuasion fails when there is some compelling idea or memory which checks stomach functioning. The gastric disturbances in these cases resist treatment until this obsessing memory is rooted out or conquered. Curschmann reports three cases of this kind. In one an unmarried woman had had no appetite for some months and became nauseated at the sight of food. After the failure of ordinary measures, Curschmann applied psychanalysis to a certain extent, groping back in the past to find some cause for her nausea, and it was readily discovered. She had waited on a consumptive whose coughing often sprayed the food with sputum, and after the death of this woman she had lived in a family which kept several untidy cats. The sight of food afterward recalled the consumptive and the odor of the cat droppings, and Curschmann to dispel this memory-obsession applied light hypnosis. Improvement followed the first sitting and complete recovery the second. In two other cases he cured with hypnosis a similar chronic disgust-nausea developed from an unfamiliar diet; by a curious coincidence, one patient acquired the neurosis during service in a Jewish family, disliking the kosher food, while the other, a Jewish young man, developed it in a non-Jewish boarding house from the lack of his accustomed kosher diet. Curschmann regards these rebellious alimentary obsessions in adult neuropathic persons as the essential field for hypnosis. He applies it according to Forel's principles. The indispensable condition for success, however, is to dig into the past to ascertain the true cause of the obsession.

Wiener klinische Wochenschrift, Vienna

September 11, XXVI, No. 37, pp. 1439-1484

144 Radium in Dermatology. G. Riehl and M. Schramek.
145 *Resistance of Local Foci of Spirochetes to Combined Treatment of Syphilis. F. Fischl.
146 *Radium and Mesothorium Treatment of Cancer. O. Schindler. Commenced in No. 36.

145. **Resistance of Spirochetes in Local Foci.**—Fischl reports the local findings in three cases after most thorough combined treatment of the constitutional syphilis and local mercurial treatment of the local foci. The spirochetes in the foci persisted apparently not much modified by all these measures, and after the mercury and salvarsan have been eliminated from the body, the spirochetes still lurking in the focus may rouse to ravage anew. His findings in these and other cases confirm the importance of excising or at least destroying the early foci. When spirochetes thus escaping treatment sally forth anew, the consequences may simulate reinfection.

146. **Radiotherapy of Cancer.**—Schindler describes his experiences with radium and mesothorium in various types of malignant disease, all confirming the advantages of large doses well filtered. The effect seems to be identical with the filtered radium and mesothorium rays; they have greater penetrating power than the Roentgen rays, while the technic of the application of radium and mesothorium is far simpler and infinitely more convenient than Roentgen-ray exposures.

Zeitschrift für Kinderheilkunde, Berlin

VIII, No. 5, pp. 363-442. Last indexed Sept. 27, p. 1083

147 Gruel Diet in the Treatment of Rumination. (Zur Therapie der Rumination im Säuglingsalter.) K. Huldschinsky.
148 *Congenital Tuberculosis. M. Zarfl.
149 The Infants' Ward in the New Vienna Children's Hospital. (Die Säuglingsstation der neuen Wiener Kinderklinik.)
150 (Lingua geographica.) H. Jellinek.
151 Case of Severe Infantile Anemia Caused by Typhoid. (Fall von schwerer Säuglingsanämie—Anämia pseudoleucämica infantum—durch Typhus abdominalis.) G. Wolff.
152 Influence of Body Length on Frequency of Pulse and Respiration. (Ueber die Beziehungen alternierender Bewegungen zur Länge der Reflexbahnen.) P. Freund.
153 Energy Quotient of Breast-Fed and Artificially Fed Infants. I. Engel and S. Samelson.

148. **Congenital Tuberculosis.**—Zarfl cites cases from the literature in which tubercle bacilli have been demonstrated to have passed with the mother's blood through the placenta to the fetus. He describes in detail a case of his own, an infant

born of a tuberculous mother. On the seventeenth day of its life, the Pirquet reaction was markedly positive, showing, he says, that the infection must have taken place in intra-uterine life, as such a sensitiveness to tuberculin could not have developed in seventeen days. On the eighteenth day there was enlargement of the spleen and liver. The swelling of the spleen increased and was the most prominent symptom throughout. Up till the last week there was no clinical or Roentgen-ray evidence of lung involvement. The child died on the fifty-second day of its life and autopsy confirmed the assumption of blood-borne infection from the mother as the lymph-nodes of the liver region were the ones most seriously involved, and there was only slight involvement of the bronchial lymph-nodes, while no focus could be demonstrated in the lungs. Ghon and others have shown that in tuberculosis acquired after birth there is practically always a primary focus in the lung. The mother lived three months after the birth of the child.

Zentralblatt für Chirurgie, Leipsic

September 13, XL, No. 37, pp. 1441-1480

154 Exclusion of the Pylorus. (Pylorusausschaltung mittels Totaldurchtrennung und Gastroenteroanastomose End-zu-Zeit.) R. Dobbertin.
155 *Transplanting Hair-Growing Skin. (Zur Frage der Ueberpflanzung behaarter Haut.) V. Perimoff.

155. **Transplanting Part of the Scalp.**—Perimoff reports the case of a man with a deforming cicatrix in the right side of his head, who made an arrangement with a Mohammedan for a transplanting operation, paying the latter for a part of his scalp; Mohammedans always keep their heads covered. Both were anesthetized with chloroform at the same time. The cicatricial area was cut out down to the periosteum and was replaced with the flap from the other scalp. It healed perfectly in place, the hairs did not fall out and continued to grow apparently normally. The areas had been cleaned only with soap and warm water, and Perimoff thinks that the failure of others in similar operations may have been due to the over-vigorous sterilization of the graft. The skin of dogs does not fit to the scalp so well.

Zentralblatt für Gynäkologie, Leipsic

September 13, XXXVII, No. 37, pp. 1349-1380

156 Changes in Ovaries Following Repeated Injections of Epinephrin. (Experimentelle Untersuchungen über Eierstocksveränderungen infolge wiederholter Adrenalineinspritzungen.) F. R. Varaldo.
157 Obstetric Forceps with Non-Dilated Uterine Cervix. (Ueber den Forceps intrauterinus, die Anwendung der geburtshilflichen Zange innerhalb der Gebärmutter bei nicht verstrichenem Muttermunde.) K. Neuwirth.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 31, XXXIV, No. 104, pp. 1079-1094

158 Congenital Cystic Lymphangioma in the Neck. G. Corbetta.

September 4, No. 106, pp. 1103-1110

159 Epithelioma of the Face Healing under Treatment with Active Principle of Jequirity. C. Chiri.

September 7, No. 107, pp. 1111-1126

160 *Importance of Calcium in the Origin of Atheroma and Arteriosclerosis and Treatment by Abstention from Calcium in the Diet. C. Scandola.

September 11, No. 109, pp. 1127-1142

161 Diabetes Insipidus; Two Cases; Recovery Under Hypophysis Extract Treatment. F. Francesco.

160. **Importance of Abstention from Lime in Management of Arteriosclerosis.**—Scandola's long article confirms the importance of lime as a factor in disease of the arteries. Also that with existing disease of the arteries there is *notable* retention of calcium on an ordinary diet, while nothing brings such profuse elimination of calcium as to abstain from it in the diet. When foods are used which contain merely minimal proportions of calcium, the elimination is greater than the intake, and this is an important element in treatment of arteriosclerosis. He gives some data showing that bread, meat, potato and rice contain comparatively little calcium. In his research he found the figures respectively 0.04312, 0.69358, 0.01476 and 0.05432 gm. per 100 gm. Cheese, milk, eggs and beans contain large proportions of calcium. He gives illustrations showing the findings in the arteries of dogs fed systematically with calcium, and reports other research of his own and others, reiterating that a calcium-free diet has a greater effect on the elimination of calcium than any drug known.

Policlinico, Rome

September 7, XX, No. 36, pp. 1285-1324

162 Transvesical Prostatectomy; Six Cases. E. Buzi.
163 Morbid Dread. V. Forli.
164 Symptoms of Chronic Ethmoiditis. T. Mancioli.

September 14, No. 37, pp. 1325-1360

165 *Neuroses Among Telephone Girls; Nine Cases. (La neurosi delle telefoniste.) G. Fumarola and C. F. Zanelli.
166 Cancer of the Rectum; Two Cases. V. Porcile.

September, Medical Section No. 9, pp. 385-432

167 Non-Agglutinating Vibriones; Their Relation to Cholera. V. Puntoni.
168 The "Starch Bacteria" in Human Intestine. (Sugli amilobatteri dell'intestino umano.) D. de Sandro.
169 Anthracosis. (Alveolite sif.-pulmonare con antracosi.) P. Filadoro.
170 Heat-Stable Precipitins of the Undulant (Malta) Fever Micrococcus. (Le termoprecipitine del micrococco melitense.) L. Vigano.

165. **Neuroses among Telephone Girls.** — Fumarola and Zanelli report nine cases encountered at the university clinic for nervous affections at Rome. In nearly all the cases there was a history of nervous disturbances in previous years, before taking up the telephone work. The neurosis in all seemed to be of the cerebral type of neurasthenic hypochondria, associated with anxiety, dread and vasomotor disturbances. The prognosis is good in the early stages if the patient can change her occupation. In cases of long standing, recurrence under the same conditions is almost inevitable. The work requires manual skill and accurate vision, and is a constant strain on the hearing; the entire organism thus participates in the work and during certain hours of the day there is not a moment for rest. Add to this the vibrations of the receiving membranes and the repeated electric shocks and it is easy to understand that a predisposed nervous system is unable to stand the strain. Iron and arsenic were found useful and gelsemium and solanin for the nervous system, but the most important measure was abstention from the telephone work for a time at least. The bibliography on the subject is appended.

Riforma Medica, Naples

September 6, XXIX, No. 36, pp. 981-1008

171 Modification of Blood-Corpuscles during Muscular Exertion. (*Modificazioni* quantitative ed istologiche dei corpuscoli del sangue nel lavoro muscolare.) V. Palmulli.
172 Glycolytic Action of the Tonsils. G. B. Farmachidis and A. Vattuone.
173 Technic for Iron Treatment of Chlorosis Anemia and Status Lymphaticus. (*La cura degli stati cloro-anemici e limfatici* col citrato triferroso unito al joduro ferroso.) A. D. Piane. *Commenced in No. 35.*
174 Action of Massive Doses of Sterilized Tubercle Bacilli in Subcutaneous Injection. F. Morelli. *Commenced in No. 34.*

Semana Medica, Buenos Aires

August 14, XX, No. 39, pp. 345-400

175 *Treatment of Defects* in Speech. (Reeducacion medica-pedagogica y curacion de la tartamudez.) A. Quadri and L. Morzone.
176 The Urea Content of the Blood as Test for Kidney Functioning. (Contribucion a la determinacion *del valor clinico de* la Constante ureo-secretoria de Ambard.) N. D. Rosso. (See THE JOURNAL, 1912, lix, 818.)

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXIV, No. 9, pp. 1161-1304 and Supplement

177 Types and Transitional Forms of *Tubercle Bacilli.* (Opponentbemerkninger til de Besche's bakteriologiske studier *over* barnetuberkulose.) O. Malm.
178 Rupture of Lung without Rupture of Ribs; Two Cases. S. Widerøe.
179 Infantile Scorbutus. (Et tilfælde av Barlow's sygdom.) N. Barth.
180 *Cataract and the Internal Secretions. C. Schiøtz.
181 Serodiagnosis of Pregnancy. (*Abderhalden's serologiske* graviditetsreaktion.) A. Sunde.
182 *Acute Dilatation of the Stomach. O. Borchgrevink.

180. **Cataract and Internal Secretion.**—Schiøtz gives an illustration of a calf with congenital *goiter*, cataract and various signs of cretinism, and he *theorizes* and presents numerous arguments to sustain the assumption that the internal secre-

tions play an important part in the pathogenesis of certain forms of cataract. It has already been established beyond question, he states, that parathyroid insufficiency may lead to cataract. Other conditions which *may* contribute to cataract are insufficiency of the pancreas and sexual glands with excessive activity of the adrenals, hypophysis and thyroid. He thinks it is now established that cataract in many cases is an evidence of *auto-intoxication* (for example, tetany and diabetes), or of extraneous poisoning (ergot, naphthalin). The aim of his present communication is to emphasize the important part which must be ascribed to the functioning of the ductless glands. It is not a mere coincidence that Bunau found that 10.6 per cent. of all the *cataract* patients at the Halle eye clinic had had typhoid fever at some time. Mann this year reported the case of two brothers who developed first cataract and then myotonic and myotrophic symptoms with, later, signs of tetany. Hippel has also recently reported the case of an infant with double cataract whose serum responded positively to biologic tests with thyroid and adrenal tissue and with this alone. Gebb has also found a difference in the response to the biologic tests in the serum of persons with and without cataract.

182. **Acute Dilatation of the Stomach.**—Borchgrevink had a patient of 53 with symptoms of acute dilatation of the stomach growing constantly worse during two weeks in spite of all his measures. This was in 1910, and turning to his library for help, he found in Moynihan's book the statement—"In my *cases relief* has always been given by changing the position of the patient. He must be placed prone in bed." He at once had his almost moribund patient turned on her stomach and lo, at once she was cured. The same dramatic change in the clinical picture was observed in a second case, and he reports three others from Bull's practice, *and reviews from the literature* 142 cases of acute dilatation of the stomach. He tabulates all this material, grouping the cases as treatment was with lavage alone, with operation, or with merely a change to the prone position or to the side with the pelvis raised. The *mortality in* the 142 cases was 54.9 per cent., but in the later series, the mortality has dropped to 26.9 per cent. of 70 cases. Of the thirty-one patients treated by medical measures alone (excluding position treatment), twenty-nine died; one recovered under large doses of sedatives, and one under continuous saline infusion; the trouble was not correctly differentiated in this case. Some in this group died in a few hours, others after a few days; Herrick's patient the twelfth and Kausch's the sixteenth day. In Sommarin's case, radioscopy showed the stomach still *reaching* 3 cm. below the umbilicus a month later. In the operative group only five of the twenty-three patients survived, one treated by gastro-enterostomy, one by gastrostomy, and three whose stomachs were evacuated by a laparotomy. The results were *poorest with gastrostomy, only* one of the eleven patients recovered. Change to the prone *position* cured twenty of the twenty-four patients; it seemed to aggravate conditions in Borchardt's case, and no benefit resulted in two others; the diagnosis was not certain in these latter cases. Reclining *on the* side with the pelvis raised *proved* effectual in three cases.

Imprudence in eating or drinking or both was manifest in forty-one of the total 142 cases, and this probably occurred in a still larger proportion; in fact, this was especially evident in the postoperative cases. The patient and nurse in other cases *may* not have acknowledged the indiscretion. The arteriomesenteric occlusion is probably secondary to the dilatation of the stomach. Borchgrevink explains the latter as due to the disproportion between the functional capacity of the organ and the work demanded of it. The stomach does not suffer more than other organs from the effect of the general anesthetic, the debility, etc., but *it* is the one organ on which demands are made almost at *once after a major* operation, etc., and if these demands are beyond its functional capacity at the moment the stomach simply abandons the attempt to respond to them. Effectual prophylaxis is thus only a matter of prudence in making demands *on* the organ until it has regained its normal tone after operations, and refraining from extreme overloading of the stomach.

Ugeskrift for Læger, Copenhagen

September 11, LXXV, No. 37, pp. 1501-1560

183 *Diagnosis and Treatment of Chronic Juxtapyloric Ulcer. (Bidrag til Mavesaarets Patologi og Terapi, II.) S. Kemp.

183. **The Juxtapyloric-Ulcer Syndrome Has Been Mistakenly Credited to Duodenal Ulcer.**—*Kemp's* article issues from the clinic in charge of Faber and may be regarded as a supplement to Faber's article summarized in The Journal, Feb. 22, 1913, p. 638. The details are tabulated of thirty-seven operative cases of juxtapyloric ulcer in stomach or duodenum and of four others with cancer. This material is studied from the point of view of the question as to whether it is possible by clinical examination alone to determine positively the existence of a juxtapyloric or duodenal ulcer. Of the more important symptoms—digestive or continuous hypersecretion, spasm of the pylorus, retarded evacuation of the stomach, occult hemorrhage, and a small amount of residue after twelve hours—the first two are encountered almost exclusively with the *juxtapyloric type of chronic* ulcer while the three others belong to the clinical picture of chronic ulceration in the stomach in general, regardless of its location. Yet even these symptoms occur with peculiar constancy with the juxtapyloric ulcers.

Kemp says that with all due credit to the writers who have turned the lime-light of attention recently on duodenal ulcer, their work must be regarded as a step backward rather than forward, for time has shown, he insists, that the syndrome they have *emphasized does not belong to duodenal ulcer* but to juxtapyloric ulcer, regardless of whether the ulceration extends down into the duodenum or up into the stomach. Periodicity of the disturbances is not peculiar to duodenal or juxtapyloric ulcers but is observed with other stomach affections at times, intervals occurring in which all the symptoms may disappear. Tardy pains may occur with affections other than ulcer. There is danger that the subjective symptoms will be given too much weight in diagnosing and that the physician's *mode of questioning may suggest to the patient* the answers that are anticipated, especially in regard to the subjective symptoms, and among these the tardy pains in particular. Previous examinations by other physicians or the conversation of other patients may *afford suggestions that will unconsciously modify the patient's statements* as to the present status and the history of his case. Two cases in particular are cited to impress this lesson; both patients complained persistently of symptoms assumed to be due to a duodenal ulcer and both were operated on. *Necropsy in* each case *revealed merely an old, healed* gastric ulcer; the subjective symptoms of the ulcer had persisted, reenforced by neurasthenia, and notwithstanding the normal objective findings gastro-enterostomy had been done in each case. The patients were men of 25 and 37, and *both died* a few days after the operation, demonstrating anew the dangers of a diagnosis based on the patient's complaints alone.

In conclusion Kemp reviews the history *of the* science of diagnosis of gastric ulcer, and states that an *ulcer may* be assumed either (1) when *there are periodical,* tardy pains (vomiting), excessive gastric secretion and occult bleeding; (2) periodic tardy pains (vomiting), *hypersecretion* and small retention after twelve hours; (3) periodic *tardy* pains (vomiting), hypersecretion and spasm of the pylorus; (4) hypersecretion, *occult bleeding* and small twelve-hour retention; (5) hypersecretion, motor insufficiency of the first degree, and small twelve-hour *retention;* (6) hypersecretion, spasm of the pylorus and small twelve-hour retention, or, (7) attacks of spasm *of the pylorus* and occult bleeding. With ulcer, the spasm of the pylorus *causing* the pain relaxes after the stomach has been emptied, while with *cholelithiasis* the pylorospasm is a minor element in the general contractions. This point is useful in differentiation.

Determination of the juxtapyloric site of the ulcer is of paramount importance for the reason that a *simple* gastro-enterostomy is all that is needed, as a rule, in these cases. With ulcer elsewhere in the stomach, resection is *generally* the only measure available for permanent relief.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXI, No. 17 Chicago, Illinois October 25, 1913

SOME NEWER METHODS OF REDUCING THE MORTALITY OF OPERATIONS ON THE PELVIC ORGANS *

GEORGE W. CRILE, M.D.
CLEVELAND

Since the inauguration of the aseptic era the mortality-rate in abdominal operations has been falling steadily and to-day there are practically no deaths from simple abdominal operations for conditions unaccompanied by organic disease or infections.

This reduced mortality-rate is due in part to an improvement in technic, but very largely to the exercise of an increasingly critical judgment on the part of the surgeon in his selection of cases.

The technic has become standardized for such routine operations as the removal of benign tumors of the pelvic organs and for operations for chronic pyosalpinx, procidentia, prolapsus uteri, etc. The rare fatalities which occur in these apparently favorable cases result from some unforeseen and as yet uncontrollable factors such as embolism.

The results secured by the individual surgeon have come therefore to depend on two factors: his mastery of general operative technic and his policy in the selection of cases for operation.

The reclamation of the handicapped patient, however, has been and is one of the most cogent surgical problems. Mortality-rates would indeed be high were they based only on operations on patients with hypertension or hypotension, the result of infections or organic diseases; but I believe that even in these cases patients may be operated on successfully, not only without fatal end-results, but without the familiar train of disastrous sequelae, so disheartening to patient and surgeon alike.

If operations on handicapped patients can be postponed safely, the underlying causes of the hypertension or hypotension may often be combated successfully. Physiologic rest, diet and special therapeutic measures may avail to bring the patient to a condition in which operation may be safely attempted. The handicapped patient has been searchingly studied by the able chairman of this section, Dr. Simpson.

Our problem is (1) to discover what may be the special risks when operation cannot be postponed; and (2) to evolve means by which those risks may be obviated or minimized.

The natural sequelae in hypertension cases are embolism, thrombosis, renal insufficiency, angina, pneumonia and cardiac failure. The same train of disastrous results may be seen in persons with hypertension who have been injured in accidents, and also in physically uninjured persons who have undergone some severe psychic shock. Since both psychic and physical strains produce identical results in patients with hypertension, it would seem that the seat of danger must be found at the final point of meeting of both psychic and physical impressions—that is, in the brain tissue.

A long series of laboratory experiments on animals subjected, some to emotional excitation, and others to physical trauma under anesthesia, showed that identical brain-cell changes were caused in each case. That is, both physical and psychic stimulation exhaust the physical substance of the brain cells. *Emotional stimulation* not only causes brain-cell deterioration, but produces also an increase of the internal activating secretions—epinephrin, thyroid secretion, glycogen—a vital point in cases of hypertension.

A logical conclusion from these experiments was that if an operation could be so performed that no traumatic impulse could reach the brain, and if in addition all emotional stimuli connected with the operation could be removed or reduced to a minimum, then the dangers of operation would be those only which would result from the local injury inflicted. Brain-cell exhaustion would be prevented, as would the disastrous effect of the presence in the body of increased amounts of the energizing products of internal secretions.

TECHNIC

From these premises I have evolved an operative method which I have named anoci-association because by its use all nocuous, or noci-associations are cut off from the brain. The complete operative procedure under this principle includes a lessening of the pre-operative psychic strain by the administration of solacing drugs; the administration of a general inhalation anesthetic to obliterate harmful impressions in the course of the operation; the progressive use of a local anesthetic to prevent the passage to the brain of traumatic stimuli from the field of the operation, and finally the use of a local anesthetic of lasting effect that the tissues may be kept relaxed and that painful after-effects may be eliminated or minimized.

In such an operation the brain cells have been subjected to no exhausting strain from painful impulses received through contact ceptors; and since the special senses have been closed to all impressions no psychic stimuli have reached the brain, so that the energizing organs in turn have not been pushed to increased activity.

From an operation conducted after this technic the patient with hypertension will emerge not only no worse for the experience, but it may be in actually better condition, because the body and brain have been so completely at rest.

---

* Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, 1913.

[illegible] Library
U. M. & S. Medical College
32496

The same technic avails also for the patient with hypotension whose brain cells are already weakened and exhausted by the anemic condition. In hypotension we have a definite and efficient remedy, for the condition is logically to be met by direct transfusion of blood; as occasion demands, this may be done several days before, just before, during the operation, or immediately thereafter. In these cases of hypotension, however, the margin of safety is much reduced, for some brain cells may have deteriorated from exhaustion beyond the power of resuscitation by rest or transfusion, so that it is of vital importance so to perform the operation that the already diminished resisting powers of the patient may not be further depleted.

In addition to the psychic and traumatic dangers in operations on handicapped patients, one other operative factor—the anesthetic—should receive most careful consideration.

Ether anesthesia has certain advantages. It is relatively safe in inexperienced hands; its bulk is small; it is inexpensive; it requires the simplest apparatus for administration. Against ether, however, stand certain effects, objectionable always, but of peculiar danger to patients with hypertension. However skilfully it may be administered it always induces a period of psychic stress in the earlier stages of its administration; the strain of ether nausea and vomiting is especially dangerous in these critical cases which we are considering; the dose of ether required to dissolve the lipoid in the brain sufficiently to cause anesthesia dissolves also the lipoids in the liver, the kidneys, the red blood-corpuscles and other important structures. Ether also chemically hinders or prohibits phagocytosis; hence it may produce nephritis and pneumonia, and, of vital importance in hypotension cases, anemia. Ether immediately impairs the immunity of the patient so that infections find a ready recipient.

I have therefore made nitrous oxid the anesthetic of choice, because it is devoid of harmful after-results, and serves as a measurable protection against shock, since by its hindrance to oxidation it diminishes brain-cell changes—a fact which I have established experimentally. It is an expensive anesthetic and should be given only by a specially trained and skilful anesthetist, objections which can have no weight as compared with the resultant advantages to the patient derived from its use.

The complete technic in abdominal operations is as follows: When the preoperative strain is great, an hour or so before the operation the patient is given a hypodermic injection of 1/6 grain of morphin and 1/150 grain of scopolamin, that he may receive the solace and quiet which come from the use of these drugs. In exceptional cases the inhalation anesthetic may be administered in the patient's room; or else, in the apathetic state produced by the morphin and scopolamin, the patient is conveyed gently to the operating-room, where a specially trained anesthetist administers nitrous oxid. When the patient is anesthetized the division of tissue is preceded by nerve blocking by means of the local administration of 1:400 solution of novocain. Each division of tissue in the course of the operation is preceded by the infiltration of this local anesthetic, the block being made so complete that no nerve is left free to carry a single activating impulse to the brain. First the skin, therefore, then the subcutaneous tissue, then the fascia, and finally the remaining muscle or posterior sheath and the peritoneum are in turn novocainized, subjected to momentary pressure to spread the anesthetic, and then divided within the blocked zone. If the blocking has been complete, then on opening the abdomen there will be found no increased intra-abdominal pressure, no tendency to expulsion of the intestines, and no muscular rigidity.

The peritoneum is next everted and a 0.5 per cent. solution of quinin and urea hydrochlorid is infiltrated about the line of proposed sutures; and, as before, the parts are then subjected to momentary pressure. This infiltration serves as a block, and as its effects last for several days it should prevent or at least minimize the postoperative wound pain and the postoperative gas pain, and by so much minimize postoperative shock. The quinin and urea salt causes a certain amount of edema of tissue, which lasts for some time after the wound is healed. The relaxed abdominal wall will permit exploration of the entire abdominal cavity with ease. If there is no cancer or acute infection in the field of operation, then the following regions may be blocked as completely as, and in the same manner as, the abdominal wall, namely, the meso-appendix, the base of the gall-bladder, the uterus, the mesentery and any portion of the peritoneum. In performing a hysterectomy the broad and round ligaments are thoroughly infiltrated with novocain before they are severed, and again before the wound is closed the stumps may be completely infiltrated with quinin and urea hydrochlorid, thus giving a degree of anesthesia for at least two days. On account of the absence of nociceptors, operations on the stomach and intestines made without pulling on their attachment cause no pain, and hence the novocain infiltration of these viscera is not required. If the brain has received no stimuli during the operation, then the closure of the upper abdomen is as easy as the closure of the lower; all is done with the ease of relaxation.

What is the result? No matter how extensive the operation, no matter how weak the patient, no matter what part is involved, if *anoci* technic is perfectly carried out the pulse-rate at the end of the operation is the same as at the beginning. The postoperative rise of temperature, the acceleration of the pulse, the pain, the nausea and the distention are minimized or wholly prevented.

RESULTS

I have described the complete anoci operation. What is its effect on the postoperative conditions—the morbidity and the mortality? Let us take each morbid manifestation in turn.

1. *Postoperative Pain.*—Quinin and urea hydrochlorid wholly prevents pain if it is injected into the entire wound. But quinin and urea cause some edema of the wound; hence one should limit the wound infiltration to cases needing it, that is, bad risks generally.

2. *Postoperative Gas Pain.*—This baffling phenomenon may be largely or wholly prevented by the technic described, that is, by the hypodermic infiltration with quinin and urea hydrochlorid of a wide margin of tissue, including every part of the divided peritoneum. The stitches must be inserted within the blocked zone. Postoperative gas pain can be explained as a biologic adaptation to overcome infection. In the course of evolution all abdominal penetrations are infected, but the peritoneum is able to overcome most infections if they can be localized. To localize an infection the intestine and the abdominal wall must be kept fixed against each other; that they may do so each must be inhibited; the intestine must be distended with gas, the abdominal wall must be rigid. If the intestine be distended with gas and fixed, then digestion must cease. If digestion be arrested then there is anorexia, or even vomiting to expel food from the stomach. This shows us how postoperative gas pain is due to a biologic adaptation to overcome infection, and

explains its resemblance to incipient peritonitis. Nature does not depend on the surgeon or perhaps she knows the surgeon too well. The test of this hypothesis is easily made. If the brain, through which this adaptive response is made, is kept in ignorance of the incision into the peritoneum (*a*) by progressive novocain blocking throughout the operation and (*b*) by postoperative quinin and urea blocking to prevent later communication with the brain through stitch tension, then there should be no gas pain. Clinical experience has abundantly confirmed this hypothesis. It must be remembered that if a single nerve filament escapes the block there will be gas pain.

3. *Painful Scar.*—I postulate that the lesion of a painful scar is in the brain, not in the scar; that it is due to the low threshold produced by injury, and is intimately connected with a fundamental principle of nerve conduction. This fundamental principle relates to the fact that a strong traumatic or psychic stimulus produces some change in the conductivity along its cerebral arc, the effect of which is that of lowering the threshold of that arc. This might be illustrated by the phenomena following a hold-up at the point of pistol at a street corner. For a long time after such a psychic stress any association with that particular corner would recapitulate the experience. In this manner throughout life the various experiences may lower the threshold in innumerable ways. I assume that there is a similar result after a traumatic stimulus. The arc receiving the stimulus suffers a lowered threshold and hence from that time on mere trifles become adequate stimuli. Such a result is seen in the sensitiveness after fractures and in the painful stumps of crushed limbs. Now, if an operation is so performed that no strong stimulus reaches the brain either during or after the operation, then the thresholds of the cerebral arc from the wound will not be lowered. Since the threshold is not lowered, contact with the scar or any injury to that part will have no more effect than will contact with any other part of the body. In other words, the scar will be no more sensitive than is the skin elsewhere. Hence we see how painful scar may be prevented by complete anoci. Clinical data seem to support this hypothesis, although it has not as yet been fully worked out.

4. *Nervousness.*—When in the night one is threatened with an unknown danger, the brain threshold is always lowered, apparently as an adaptation to the more swift and accurate detection of the danger. Likewise, when one has received a crushing physical injury there is a universal lowering of the threshold. During these states of tenseness minor stimuli have major effects, or, in other words, one is "nervous."

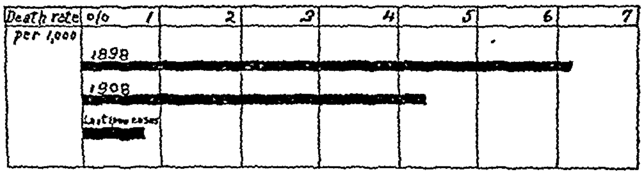
Now, as we have seen, the subconscious brain is tortured directly during unblocked operations under inhalation anesthesia. The resultant general effect on the brain thresholds is demonstrably the same as if the injury had been inflicted without anesthesia, that is, after the punishment of the subconscious mind during an operation the patient emerges "nervous" and "exhausted"; and since a low threshold is lavish in its waste of nervous energy, recuperation is slow. Hence there results a period of postoperative nervousness, of postoperative loss of efficiency. It is obvious, and clinical experience abundantly proves this, that the threshold is preserved by complete anoci; hence the unpleasant, damaging postoperative phenomena are avoided.

5. *Aseptic Wound Fever.*—Since it is a physical law that any form of force may be converted into heat, and that heat thus produced, if not at once transformed into motion, must increase the temperature of the body affected, we see readily why any stimulus, mechanical or physical, which normally would increase motor activity, must cause a rise in temperature if complete motor expression is impossible. Anything, therefore, that drives the motor mechanism of the body beyond the point of normal expression will cause fever. Anger, athletic contests, fear, physical injuries, all produce a rapid oxidation of certain body compounds too great for complete translation into motion.

In operations under general anesthesia only, we expected routinely to see some postoperative rise of temperature as a result of the suppressed power of motor response to the physical and psychic injury; but by the use of anoci-association, both during and after the operation, I discovered no change in the postoperative temperature and pulse-rate. I therefore was forced to the conclusion that, barring infection and the absorption of hemoglobin, postoperative fever is the result of increased oxidation, this being in turn the result of the psychic and traumatic stimuli of the operation to which the natural response had been denied.

So much for the postoperative morbidity. Not only does the surgeon, but also the patient, the intern and the nurse corroborate the story.

As for the mortality-rate, hospital statistics abundantly verify our conclusion. At the Lakeside Hospital since the introduction of this method, my associate, Dr. W. E. Lower, and myself have performed 250 pelvic operations, with but two deaths, a mortality-rate of 0.8 per cent.



Comparative mortality rate of the Lakeside Hospital Service. The first line shows the mortality rate when the hospital was first opened in 1898. The second line shows the mortality rate for the year before the anoci technic was introduced. The last line shows the mortality of the last 1,000 patients operated on at the Lakeside Hospital by the resident staff, Dr. Lower and myself.

Although my purpose in this paper is to deal only with pelvic operations, a word may be added regarding the application of this principle in a general surgical practice. Last year Dr. Lower and I performed 729 abdominal sections of every grade with a mortality-rate of 1.7 per cent., and in the Lakeside Hospital service, where all kinds of acute emergencies are met, and where most of my own private work is done, there were performed by my associates and me in the past year operations on 2,672 patients with a mortality-rate of 1.9 per cent.—a result never before approached in that hospital. In the last thousand operations performed by Dr. Lower and myself, these operations including every risk in a general surgical practice, the mortality-rate has been 0.8 per cent.

Osborn Building.

ABSTRACT OF DISCUSSION

Dr. Henry O. Marcy, Boston: The matter presented shows clearly that the dynamic energy of the individual is the thing to be preserved. While a student in London, in 1870, Sir James Paget said to me, "Dr. Marcy, do you know how to give ether?" They had had twelve deaths in the city from chloroform in the previous six weeks, and I had the opportunity of administering ether, the first time, he said, that it was ever given in London. I gave it after the old-fashioned method which we were taught in the Massachusetts General

Hospital and submerged my patient, but, fortunately, not to her death. Fifty years ago we gave chloroform in the U. S. Army, but it was given carefully and there were comparatively few accidents. When we give alcohol — and ever remember that ether is an acute alcoholic poison — we must know that we are lessening the dynamic energy of life, that we are lessening the circulatory power, and, consequently, lowering the resistance of the patient. Thus, it behooves us, in whatsoever way we give an anesthetic, to remember, first, the emotional conditions of the patient himself, and then study carefully the conditions before we operate as well as during the operation.

Dr. C. O. Thienhaus, Milwaukee, Wis.: I should like to ask Dr. Crile whether or not he would think it advisable to use the injections for the purpose of producing local anesthesia in cases of extra-uterine pregnancy with acute hemorrhage? I believe that for such cases the operation in the so-called "exciting stage of ether anesthesia" is the best method because it saves time. I feel furthermore that the fact is much overlooked that it is entirely wrong to transport these patients to a hospital. They must be operated on at home as rapidly as possible. Some of these patients who are almost pulseless hardly need any anesthetic at all and still, by prompt interference, quite a few of them have been saved, as can be shown by statistics.

Another fact ought not to be forgotten, and that is that the severest cases of general peritonitis following perforations, as well as the severest cases of internal hemorrhage never reach a hospital and, therefore, are not included in the statistics of hospital surgeons.

Dr. Arthur E. Hertzler, Kansas City, Mo.: There are wo points which I should like to bring out: (1) the short ration of novocain anesthesia—not over fifteen minutes. short to be of much use as a block; (2) the question of yperesthesia in the regions anesthetized. In the use of a ocal anesthetic we obtain an exquisite hyperesthesia which may last for days. If this region is made the object of any rritation by suture or otherwise, it is a constant source of rritation and defeats the purpose. I have been working on this problem ever since my assistant called attention to the value of local anesthesia for the lessening of the pain, and we still have little to offer. In the transversalis and the parietal peritoneum, in which the chief difficulty lies, the nerve-supply is exceedingly complex. The nerves come in external to the fascia of the transversalis and ramify external to the parietal peritoneum. How any one is going to block any particular area and keep from striking a set of nerves around the hyperesthetic area we have been unable to determine. What we have demonstrated is that much can be gained by avoiding the nerve areas in all kinds of traumatism, whether it be by suture, forceps or some other means. It is useless to infiltrate tissues that contain no nerves. I should also like to make a point, particularly for personal information, regarding Dr. Crile's statement that quinin produces edema. We have made a careful histochemical study of the effects of quinin on the tissues, and we have not observed that there is any edema produced. We do get an exudate of a granular fibrin in many instances, particularly if the use is excessive, but have never observed that either cellular or edematous infiltration takes place.

Dr. George Gellhorn, St. Louis: It seems to me timely to point out that spinal anesthesia preeminently belongs among the newer methods of reducing the mortality of pelvic operations. It is this method above all others that fulfils all the postulates of anoci-association. The brain of the patient does not know anything of the operation and consequently there is no shock. I can also confirm Dr. Crile's statement, that, because of the blocking of nerve impulses, gas pain is considerably less after spinal than after ether narcosis. It is not altogether absent, but reduced to a marked extent. I hope that Dr. Crile will define his views on spinal anesthesia in his closing remarks.

Dr. George W. Crile, Cleveland: Replying to Dr. Thienhaus' question: Of course, if one encounters an emergency of any kind, the method is not satisfactory outside of the hospital. That question must be settled on its own merits. One would not feel like abondoning a great surgical principle simply because it could not be applied to patients outside the hospital. I am speaking of patients on which this technic can be carried out. Of course, it is quite important to arrest the hemorrhage early. I am sure we all agree to the remark Dr. Thienhaus made.

All that I can say with regard to Dr. Hertzler's points is that it is a clinical fact that by local infiltration one can anesthetize the abdominal wall or any other tissue, if the work is done carefully and well. If one makes a complete infiltration and applies local pressure immediately, a local anesthesia can always be secured. I do not mind particularly what the ultimate facts are regarding the tissues so long as the end is accomplished. I am glad to have Dr. Hertzler assure us that there is no edema; but, I notice this: Quinin and urea hydrochlorid do produce a certain amount of swelling in the wound afterward, more than any other agent I know of. Novocain does not produce any swelling at all. I wish Dr. Hertzler would tell us how we can avoid the swelling which follows the injections, because these injections give something to our operations which we have never before secured. I am ready to be convinced that spinal anesthesia is a safer form of anesthesia than can be secured by our methods. It is because I have not been sure that spinal anesthesia is the safest that I have gone to the trouble of working out the nerve-blocking system. Considering our remarkably low mortality-rate and our marked control over our patients, I should not be willing to give up this method until I was sure that the substitute would be quite as safe.

CAN RABBITS BE INFECTED WITH SYPHILIS DIRECTLY FROM THE BLOODS OF GENERAL PARETICS?

OBSERVATIONS ON THE RECOGNITION OF THE VIRUS IN THE LATER PERIODS OF THE DISEASE *

WILLIAM W. GRAVES, M.D.
ST. LOUIS

Accepting as postulates that syphilis is a chronic infectious disease and that we have no means of definitely knowing its termination during the life of the infected individual, I proposed in a recent communication[1] the theory of relative tolerance as opposed to that of latency. It seemed to me that a period or periods of relative tolerance for the virus, meaning thereby an excellent, a fair, or a poor resistance of the whole or a part of the organism was a better conception, one more in accord with clinical experience, the natural history of the disease and the results of treatment than that of latency.

Certainly, the modern laboratory aids and clinical refinements now utilized in recognition of the syphilitic justify the assumption of many older and modern investigators that somewhere in the tissues of living individuals the *contagium vivum* exists and justify the hope that means may be found by which it may be readily demonstrated in every period of the disease. Nothing short of the actual demonstration of the virus in the various periods of syphilis can satisfy the exacting demands of clinical medicine or lead to the fullest recognition of the protean manifestations of this scourge of the human race. Since the epoch-making discovery of Schaudinn the demand for means of recognition of the virus either in the blood or other tissues or body-fluids in every period of the disease has become more and more insistent, especially so since it was soon found that the blood and lymph-nodes yielded inconstant findings and then only in the early periods of the disease.

---

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Department of Nervous and Mental Diseases in the Alexian Brothers' Hospital and the St. Louis University School of Medicine.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Graves, William W.: Med. Rec., New York, Aug. 24, 1912.

Uhlenhuth and Mulzer[2] seem to have been the first to succeed in growing spirochetes in the testicles of rabbits from the blood and blood-serum of syphilitics during the primary and secondary periods of the disease and in one case[3] from the blood of a syphilitic mother four years after infection who had recently given birth to a syphilitic infant. Aumann[4] confirmed their results by using blood and blood-serum from the secondary periods of the disease. Nichols and Hough[5] have succeeded recently in growing spirochetes in the testicles of a rabbit from the spinal fluid in a case of relapsing cerebrospinal lues nine months after infection.

Each of these authors emphasized his failure to find spirochetes with the dark field in the material used for inoculations. No one, so far as I know, has as yet recorded successful inoculations of rabbits' testicles or otherwise cultivated the *Spirochaeta pallida* from the blood or spinal fluid of so-called latent syphilitics, paretics and tabetics. Yet work in this direction seems most promising since Noguchi and Moore[6] have recently demonstrated typical spirochetes in a number of brains of paretics. It is the purpose of this communication to give a brief account of an attempt to cultivate and otherwise recognize the virus of syphilis mainly in periods remote from the time of infection and particularly in paretics and tabetics.

My work in this direction began a little more than three years ago with the blood and spinal fluid and now embraces approximately five hundred cases, the majority of which were found in my service at the Alexian Brothers' Hospital. These cases were studied clinically from every angle and Nonne's four reactions were used in practically all of them in arriving at diagnoses. Most of the bloods were collected from forearm veins under sterile precautions while a few were collected in ampules from ear lobules. The spinal fluids were invariably collected in a sterile manner. Bloods and spinal fluids were contrifugalized soon after withdrawal. Blood-serum from corpuscle and serum junction in test tubes or ampules and the centrifugate of spinal fluids were studied in smears stained in various ways, in native preparations, and with so-called vital stains; with India ink and with adequate dark field illumination. In only one case, that of lues spinalis, ten years after infection, were spirochetes found in the spinal fluid with the aid of the dark field or otherwise and in only two cases in the blood and in these during the eruptive stage of the disease.

My observations on the bloods and spinal fluids of syphilitics are wholly in accord with those of many others in showing that the spirochetes can rarely be demonstrated in the blood and spinal fluid. It would seem that until we can acquire more exact knowledge of the morphology of the *Spirochaeta pallida* and are, perhaps, thereby able definitely to recognize the granule forms mentioned by Noguchi,[7] or as it may be an encysted form analogous to that described by Perrin[8] in connection with the *Spirochaeta balbianii*, or the spore stage assumed to exist by many authors, attempts to demonstrate "specific" spirochetes in the blood and spinal fluid with any degree of constancy seem to be hopeless undertakings.

The almost universal negative results in demonstrating spirochetes in blood and spinal fluid derived from syphilitics caused me early in my studies to accept the idea held by many of a cycle of development in which a spore-like stage existed. As early as October, 1910, I found quite constantly in the spinal fluids of syphilitics and seemingly paralleling in number the intensity of the disease processes, non-motile round bodies and actively motile granules. The granules vary in size from ¼ to 1 micron. The smaller granules resemble the smaller so-called hemaconia, have a low refractive index to the dark field, are not centrifugalizable at moderate speeds and are not stained by ordinary dyes. The larger granules have a relatively high refractive index to the dark field, are centrifugalizable at moderate speeds and are readily stained by basic dyes.

I was at the time and still am unable to find those granules mentioned in the literature as occurring in spinal fluid. They are readily differentiated from fragments of cells found in normal and pathologic spinal fluid. I mention them here merely to caution others against interpreting them as "spores" of the *Spirochaeta pallida*. Continued studies soon showed that similar-appearing granules were found in the blood, in ascitic fluid, in transudates generally, in the bodily secretions such as saliva, tears, bile and urine, not only in syphilitics, but in non-syphilitics and likewise in the blood, spinal and other body fluids and secretions of dogs, rabbits and monkeys.

It finally occurred to me that if the syphilitic virus does remain viable in blood and spinal fluid despite the resistances of the body, then some impetus to its development might be secured by culturing *in vitro* the bloods and spinal fluids of syphilitics. Studies of approximately two hundred bloods and spinal fluids cultured in hermetically sealed ampules failed to yield the *Spirochaeta pallida* in a single instance, though the blood from ear-lobules constantly yielded other micro-organisms, the most frequent being the *Staphylococcus albus*. Moreover, the contaminated bloods as well as those remaining sterile disclosed many forms described by von Niessen[9] as stages in the development of his "syphilis bacillus"; the "*Cytorrhyctes luis*" of Siegel;[10] bodies recently described by W. Ford Robertson[11] as stages in development of his so-called *Bacillus paralyticans* and bodies recently described by McDonagh[12] as forms in the life-cycle of the virus of syphilis. My studies of sterile and contaminated bloods from syphilitics, from non-syphilitics and also from dogs, rabbits, cats and monkeys compel me to say that normal products in the blood, or artefacts, or contamination, one or more or all combined, will account for most of the findings in the blood assumed by the authors just mentioned to be either the virus of syphilis or stages in its morphology.

Perhaps the most confusing forms found by me in the bloods of syphilitics and later in non-syphilitics and animals were those which were similar to those described by Krystalowicz and Siedliecki[13] in 1908 as contracted, ring and condensation forms of spirochetes. Indeed, their *Forms 12 and 20,* and 25 to 47, inclusive, here reproduced in Figure 1, may be readily shown in mammalian blood generally. It can be shown with alkalinized stains, the dark field, with moist India-ink preparations, fresh mounts and vital stains in one way or other that the forms just referred to, as well as several others which I have encountered and at one time considered as phases in the morphology of spirochetes, are either artefacts or normal constituents and these, together with the non-motile round bodies and the granules already mentioned, will be made the subject of an early communication.

---

[2] Uhlenhuth and Mulzer: Berl. klin. Wchnschr., No. 4, 1912.

[3] Uhlenhuth and Mulzer: Centralbl. f. Bakteriol., lxiv, 165.

[4] Aumann: Med. Klin., 1912, xv, 1710.

[5] Nichols and Hough: Demonstration of *Spirochaeta pallida* in the Cerebrospinal Fluid, The Journal A. M. A., Jan. 11, 1913, p. 108.

[6] Noguchi and Moore: Jour. Exper. Med., No. 2, 1913, xvii.

[7] Noguchi, Hideyo: The Journal A. M. A., July 12, 1913, p. 1236.

[8] Perrin: Arch. f. Protistenkunde, 1906.

[9] Von Niessen: Der Syphilis Bacillus, Wiesbaden, 1908.

[10] Siegel, J.: Centralbl. f. Bakteriol., 1910, lvii, No. 1, p. 68.

[11] Robertson, W. Ford: Lancet, London, Sept. 12, 1912.

[12] McDonagh, J. E. R.: Life Cycle of the Organism of Syphilis. Lancet, London, Oct. 12, 1912, p. 1011.

With the announcement of Noguchi[14] in August, 1911, of a method of pure cultivation of *Spirochaeta pallida,* two additional avenues of research bearing on the problem in hand were made possible; first, the morphology of the virus might now be studied in pure cultures free from other biologic products than those in the medium and free from artefacts; second, the medium might prove suitable for the cultivation of the virus directly from blood and spinal fluid of syphilitics.

I have made use of both means and in the beginning largely through the kindness of Dr. Noguchi. In August, 1912, he gave me his C 2 and McD. *pallida* strains and during August and September, 1912, provided me with an abundance of ascitic fluid agar tissue medium, during which months, through the courtesy of Dr. Ewing, I enjoyed the privileges of the pathologic laboratory in the Cornell Medical School. It is a pleas- at this place to gratefully acknowledge my indebtness to Dr. Hideyo Noguchi for his generosity in supplying me with pure cultures and perfect mediums and to Dr. Ewing for the facilities of a splendidly equipped laboratory.

Both the Noguchi strains have been repeatedly transplanted and studied and no change has been noted in their morphology. The morphology of these strains, as well as of two impure strains which I have succeeded in cultivating in Noguchi mediums, seems to be constant and relatively simple. I have been able to make out with the aid of stains and the dark field but two definite stages in development; namely, the spirochete itself with curves varying from one to thirty or more and spore-like round bodies which were described by Noguchi[14] in his first paper on the pallidum. In referring to his Figures 46, 47 and 48, Noguchi speaks of these spore-like bodies as follows:

> Sometimes several round bodies are seen in a group and these are entangled in a mass of short irregular forms of *pallida.* It is not rare to find a round body connected with one or two young *pallida* as though the latter were just sprouting from the former. The *pallida* with these round bodies are motile. The size of this spore-like round body is variable. They are difficult to stain but when stained they take chromatin stain.

My observations are in accord with those of Noguchi concerning the form of these spore-like round bodies, their variable size, the sprouts which seem to come from them and their resistance to stains. Only in the best Giemsa preparations may they be seen at all. They are best stained by Stern's silver method. Drawings from a preparation derived from a thirty-eight day old subculture of Noguchi's McD. strain and stained by this method are reproduced in Figure 2. Well-stained Levaditi preparations show them constantly and some in great numbers.

Each of these bodies, as a rule, is spherical, having a uniform rim-like stainable periphery, while its interior seems void and unstainable. The bodies vary in size from ½ to 2 microns. In some cultures they seem to be more numerous than the spirochetes. In others, the converse is true. They are more often connected with spirochetes having few curves. When not sprouting these spore-like bodies are motionless, a point in analogy with spores in general; but in those specimens having one or more sprouts, motility may be made out and this seems to increase with the number of curves. One or more of these bodies are often in juxtaposition, but I have never seen a line of fission.

Noguchi[7] has noted in old cultures the breaking up of spirochetes into granules and I have noted the same in his and in my own cultures. May it not be that these granules subsequently develop into spore-like round bodies? If this be true, then the cycle in development would be: granule—spore-like body; spirochete—granule. Until we learn more about Noguchi's granular forms and the spore-like round bodies and by special stains or other means are enabled definitely to recognize and differentiate them from all other forms, the microscopic recognition of the virus in these and it may be in other forms remains a hopeful problem of the future.

While my attempts to recognize the virus in fresh and cultivated blood from syphilitics in the later periods of the disease have remained negative, I have seemingly been more fortunate in my experiments with Noguchi mediums and with rabbits. With the aid of ascitic fluid agar tissue mediums (Noguchi) I have succeeded in cultivating spirochetes from the blood of two chronic syphilitics, and from the blood of two paretics I have gotten a growth in rabbits.

Experiments with Noguchi mediums were begun in February, 1912, resumed in August, and have been continued up to the present time. The total number of cases from which either blood or spinal fluid or both have been cultured in the ascitic fluid agar tissue medium is 130. Of this number, 40 were paretics; 20, tabetics; 12, lues cerebri; 8, lues cerebrospinalis; 12, lues spinalis; 20, so-called latent syphilitics; 3, primary; 8, secondary; 4, tertiary; and 3, congenital syphilitics. The quantity of blood or spinal fluid from each case added to the mediums and incubated at 37 C. (98.6 F.) varied from 0.5 to 2 c.c., and these quantities were passed well down to the tissue with a fine pipet. In a few cases diffuse cultures were made by the addition of syphilitics' blood or spinal fluid in quantities equal to the percentage of ascitic fluid used in Noguchi mediums, and in these cultures no ascitic fluid was employed, the idea underlying this procedure being that greater quantities of the assumed virus might thus be cultured.

A few of the number of bloods and spinal fluids were immediately inoculated into Noguchi mediums, while most of them were incubated from three to ninety days either in hermetically sealed ampules or in test-tubes, and when in the latter, paraffin oil was added to prevent evaporation. It seemed likely that some impetus to development of the assumed virus might be secured by thus incubating the bloods and spinal fluids before adding them to Noguchi mediums. Be this as it may, it is, nevertheless, true that the first culture secured with Noguchi mediums was derived from blood thus incubated. The blood was collected in three ampules

---

[13] Krystalowicz et Siedliecki: Bull. internat. de l'Acad. d. Sc. de Cracovie, 1908, p. 173.

[14] Noguchi, H.: Jour. Exper. Med., xiv, No. 2.

(approximately 1 c.c. in each) Nov. 28, 1911, from a normal appearing ear-lobule of a male syphilitic thirty years after "specific" infection. The patient had been admitted to my service at the Alexian Brothers' Hospital, Nov. 26, 1911, complaining of weakness in legs and sphincter weakness. He was greatly emaciated and cachectic, showed definite physical signs of lues spinalis and Nonne's four reactions were present. He died three days after admission, within twelve hours following an intravenous injection of salvarsan. Necropsy was not permitted. The sealed ampules were incubated at 37 C. (98.6 F.) until Feb. 9, 1912, and on this date the contents of one ampule was inoculated into a Noguchi medium tube supplied by Dr. Gradwohl, labeled 2 B, and the other ampules were thereafter kept at room temperature.

On Aug. 24, 1912, the contents of a second ampule was inoculated into mediums supplied by Dr. Noguchi and labeled 2 B X, and that of a third ampule was inoculated Nov. 8, 1912, into Noguchi mediums which had been prepared under my supervision, this tube being labeled 2 B X 1. Each of these cultures showed contamination mainly by *Bacillus subtilis,* and each of them many spirochetes, all having the identical morphology, yet differing from the typical morphology of Noguchi's *pallida* strains. The differences thus far noted are (*a*) decided rigidity; (*b*) feeble movement; (*c*) marked regularity in the curves and being slightly wider in the middle; (*d*) extreme resistance to strains.

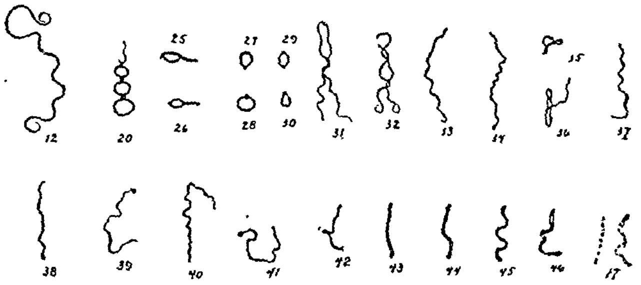


Fig. 1.—Confusing forms found in blood of syphilitics, nonsyphilitics and animals; forms that may be shown in mammalian blood generally.

Cultures 2 B, 2 B X and 2 B X 1 have been repeatedly subcultured without change in morphology and despite every effort at purification the *Bacillus subtilis* remains. The spirochetes in these cultures seem, like Noguchi's *pallida,* to originate from spore-like round bodies, and they have even a greater resistance to stains. The peculiar morphology may be accounted for, possibly, by differences in *pallida* species, or by altered cultural conditions incident to the presence of the bacillus subtilis, or by considering them of a species not hitherto described, or by considering them involuted forms analogous to those noted by Noguchi[15] while cultivating his *macrodentium* strains. Until purification can be accomplished or strains having similar morphology can be secured direct from syphilitic blood drawn under sterile precautions, identification cannot be definitely determined.

The points of special interest in connection with strains 2 B, 2 B X and 2 B X 1 are that the virus was derived from the blood of a syphilitic thirty years after infection and that it remained viable in sealed ampules for 71, 266 and 310 days, respectively, after drawing the blood and before adding it to Noguchi mediums.

The blood from which the second growth in Noguchi mediums was secured was drawn June 12, 1911, in an ampule from the ear-lobule of a syphilitic twenty-three years after infection. The patient had optic atrophy and diplegia following an attack of lues cerebrospinalis eight years before coming under observation. The blood of this patient was kept at room temperature and inoculated into Noguchi mediums Aug. 29, 1912, one year, two months and twenty-eight days after sealing it in an ampule. This culture was not examined until March 4, 1913, and a few typical spirochetes were found. Several subcultures were immediately made, but thus far no growth has occurred in any of them and the original culture no longer shows spirochetes. In this culture the growth was evidently feeble, but that growth should have occurred at all seems noteworthy, particularly when it is remembered that the blood from which it was derived was kept in a sealed ampule at room temperature for more than a year.

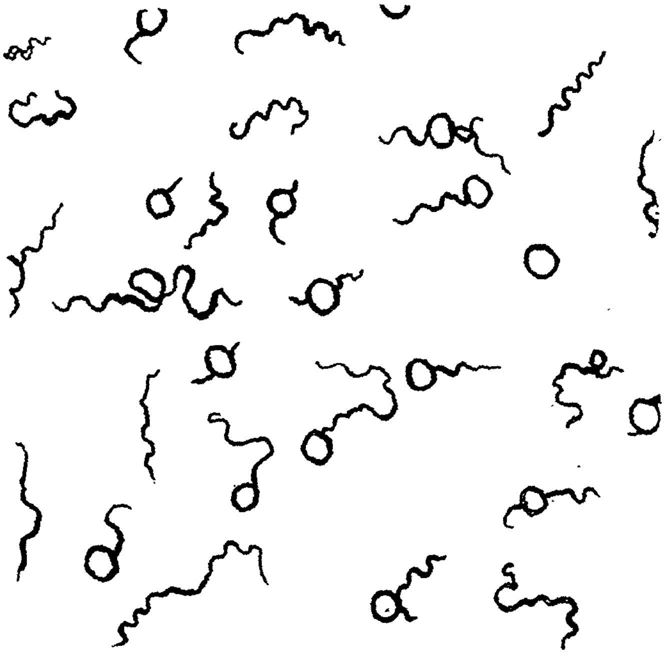


Fig. 2.—Drawings from a silver preparation of Dr. Noguchi's McD. strain illustrating spore-like round bodies and their relations with spirochetes.

Assuming the strain from the case just cited and strains 2 B, 2 B X and 2 B X 1 to be *pallida,* it would seem that the cultivation of the syphilitic virus directly from the blood of chronic syphilitics with the aid of Noguchi mediums is among the possibilities of the laboratory. Even though the blood from only two cases out of one hundred and thirty yielded positive results, they are, nevertheless, encouraging and should stimulate us to learn, if possible, the conditions most favorable for the successful cultivation of the virus *in vitro* when derived directly from the blood or spinal fluid of syphilitics.

Thus far blood from four classical cases of general paresis and from one case of taboparesis has been injected in quantities of 2 c.c. in each testicle of healthy full-grown rabbits. Only one rabbit has been used in each case. The rabbits were free from skin lesions and studies with the dark field showed no spirochetes in the buccal cavities, about the genitals or anus. The bloods were collected in a sterile manner from forearm veins and no visible lesions of the skin were noted in any case. The bloods were neither defibrinated nor was citrate or oxalate of sodium employed to prevent clotting. In four of the five cases bloods were incubated from two to seven days at 37 C.; whereas in one case it was injected two hours after drawing it. Before injecting the blood it was mortared and the clot thus partly broken yielded a rich red serum. In injecting the blood the needle was caused to penetrate the long axis of the testicle, the point of the needle passing twice through the tunics, and as the needle was withdrawn the blood was distributed first between the tunics and, secondly, along the course of the needle. I shall give abstracts of histories and rabbit protocols only in the two cases yielding positive results.

---

[15] Noguchi, H.: Jour. Exper. Med., xv, No. 1, 1912.

REPORTS OF CASES

Case 1.—Man, married, aged 37, had sustained a luetic infection eighteen years ago, receiving thereafter two years' continuous treatment. He became a prominent business man and is said to have been in good health until four years ago, when shooting pains developed in the legs, though transient diplopia occurred on several occasions during the last eight years. For the past two years slight unsteadiness in the dark had been noted. Slight change in disposition was noted in the summer of 1911 and in October of the same year a rapid onset of mental symptoms pointing to general paresis developed. He was seen at that time by Drs. Fry, Hoge, Bliss, Herman, Campbell and myself. His mental state was one of disorientation, confusion and expansion.

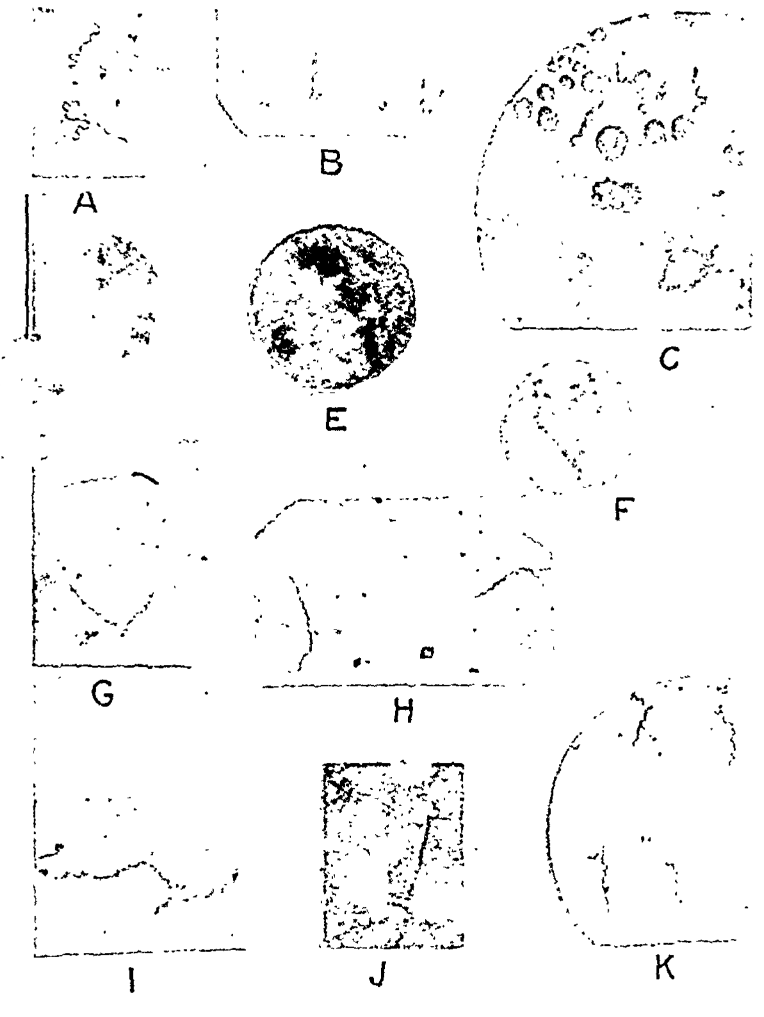


Fig. 3.—*Spirochaetae pallidae: a, b, c, f, g, h, i,* and *k* are from Giemsa preparations from tissue emulsions of lesions of Rabbits 4 and 15. Note the spore-like round bodies in *a, b* and *k*. The others *(d, e and j)* are spirochetes from strains 2 B, 2 B X and 2 B X 1 from dark field photomicrographs. Magnification in *i* is approximately 1,000; in other figures 800.

The physical examination disclosed associated tremor of facial muscles, syllable stumbling, entire absence of lower and upper extremity, tendon and periosteal reflexes, Gordon toe reflex on right, absent abdominals and marked analgesia, especially over legs, slight Rombergism, slight ataxia of lower extremities, well-reacting pupils and normal eyegrounds. The clinical diagnosis at the time was taboparesis. The laboratory findings secured within two weeks after onset were Wassermann reaction in blood-serum and spinal fluid positive, 120 lymphocytes per cubic millimeter and increased globulin content in spinal fluid.

Three months after onset a definite remission occurred lasting several months, during which time the patient seemed quite normal mentally. In July, 1912, right-sided epileptiform convulsions occurred, followed by temporary aphasia and weakness. Following this numerous similar attacks with increased deterioration marked the progress of the disease, death occurring in a convulsive seizure in March, 1913. This patient was under active mercurialization from November, 1911, up to within a short time before his death and in July, 1912, he received 0.6 gm. of salvarsan intravenously.

Blood from this patient for Wassermann reaction and rabbit experiment was drawn Jan. 25, 1913. The Wassermann reaction at this time was negative. The blood was incubated at 37 C. (98.6 F.) until February 1 (seven days), when 2 c.c. were injected into each testicle of a full-grown black rabbit, No. 4.

Case 2.—Man, aged 41, had an initial lesion fourteen years ago and thereafter two years' continuous treatment. He was admitted to Alexian Brothers' Hospital Feb. 3, 1913. Mental change first noted four months ago. On admission marked disorientation for time and place, no insight, expansive delusions, marked excitement, Argyll Robertson pupils, facial tremor, syllable stumbling, unequal and exaggerated tendon reflexes, a pathologic toe reflex on the right. Nonne's four reactions present.

On February 22 blood drawn from forearm vein and two hours later 2 c.c. of this were injected into each testicle of a healthy white rabbit, No. 15.

The positive results thus far secured with inoculations of blood from the two cases of general paresis into the testicles of Rabbits 4 and 15 may be thus summarized: After sixty-six days' incubation Rabbit 4 showed spirochetes in right testicle and in tissue emulsions from lesions about eyelids, perineum and anus, the skin lesions persisting approximately forty days. The skin lesions recurred about the anus and eyelids seven and twenty-three days, respectively, after their complete disappearance. Specific testicular lesions have been produced in two rabbits by inoculating tissue from lesions from Rabbit 4. After approximately forty-eight days' incubation Rabbit 15 showed spirochetes in lesion about the prepuce, persisting approximately forty-five days, and during the activity of this lesion the disease was transmitted to two female rabbits by mating, to the one with, to the other without scarification of vaginal orifice; to one rabbit by inoculation of scarified surface of upper lid and to one rabbit by injecting tissue emulsion from prepuce lesion into testicles. A lesion recurred about prepuce in Rabbit 15 seven days after all lesions had completely disappeared. Lesions also recurred in Rabbits F 15 A and F 15 B after their complete disappearance. Gummas were found in right testicle of Rabbit 15 after an incubation period of ninety days. The spirochetes from the lesions in each of the infected rabbits show to dark ground illumination, to Giemsa stain and to India ink a morphology identical with that of *Spirochaeta pallida*.

On June 1 tissue emulsion from anal lesion of Rabbit 4 and stained preparations from tissue emulsions from Rabbits 4, 15, F 15 A and F 15 C were sent to Dr. Hideyo Noguchi for study and criticism, and in a letter dated June 7 he states: "I found typical *pallida* both in the emulsion and in stained preparations."

CONCLUSIONS

On the evidence recorded in this paper it seems we are justified in affirming that rabbits can be infected with the virus of syphilis directly from the bloods of general paretics. Until confirmatory and additional work can be done, clinical observations and laboratory methods will continue to support the idea that in paretics, tabetics and so-called latent syphilitics the living virus of syphilis is ever present.

Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. Charles R. Ball, St. Paul: Dr. Graves' paper presents positive and definite results which must be seriously reckoned with in any consideration of the nature and cause of general paresis.

Dr. Sanger Brown, Chicago: I suppose it is too early to draw any hard and fast conclusions, but it is certainly very gratifying to know that work tending toward definite demonstration is being done, and I think that it might lead us to hope that we will finally discover the causation of general paresis. There are, of course, many things to be cleared up. A great deal of work must be done by different investigators, and they must compare and check up their results and methods closely. For instance, it appears conclusively from Dr. Graves' paper that the specific virus, after remaining in the human subject for twenty-five or thirty years, can infect a rabbit with the positive lesions of syphilis; and yet it is pretty well established, no matter what laboratory experiments might seem to show, that usually after two or three years nothing remains in the human subject which can be transmitted to produce the acute diseases in the human female. These are questions that will have to be cleared up. The main and important element in this work is that it is apparently leading up to the causation of syphilis, and we hope that something may develop from it to enable us to cure or prevent the disease.

Dr. William W. Graves, St. Louis: I hope that I have not made the impression that I feel that my report to-day is in any sense final. The work must, of course, be confirmed by others and must be done on a much larger scale than I have been able thus far to carry out.

I think that the actual demonstration of the virus would convince some people of the real effects of syphilis, not only so far as it affects the individual himself, but also so far as it affects his wife and family. From my own observations I have long since come to the conclusion that the syphilitic, however thoroughly we have cured him, is still a menace to himself and to his family.

In answer to Dr. Brown I may cite this experience, which those who have had opportunity of curing syphilis as I did during the early years of my professional career may verify if they will. Out of twenty cases of syphilis which I had treated no less than two, three, four or five years, as we treated syphilis twenty-five years ago, eight of the wives of the syphilitics gave positive Wassermann reaction, and very few failed to show some physical signs that could be attributed to a syphilitic infection. Out of all of the children of these patients, about seventy, I did not find one that compared favorably with either parent. I therefore believe that the idea suggested by Dr. Brown, that the syphilitic is a harmless member of society after he is cured, is not tenable. If we will observe our patients over a number of years after infection, we shall find that they show ever-increasing signs, particularly in connection with the cardiovascular apparatus and the nervous system, which can be attributed only to a former syphilitic infection. We need to diagnose this condition through a laboratory method. In the diagnosis of the cases we have, of course, the Wassermann reaction, which is of the greatest help, and we need to recognize definitely the virus of syphilis in the various periods of the disease as readily as we now recognize the tubercle bacillus in tuberculosis. I believe that this will be the ultimate outcome of laboratory research.

CULTIVATION OF THE RABIES ORGANISM *

ANNA WESSELS WILLIAMS, M.D.
NEW YORK

From the earliest days of artificial cultivation many investigators have attempted to grow the specific organism of rabies, but few have had the courage to report positive results. Among the latter may be mentioned, for example, Bruschetti (1896), who reported that he had cultivated on special brain-broth mediums an extremely minute pleomorphic bacillus, which up to the sixth culture generation produced typical rabies in susceptible animals; and later Levy (1903), Sormani (1903) and a few others reported equally positive results with cultures of different micro-organisms isolated from rabies animals. No one so far has been able to corroborate these results.

Since Negri and others demonstrated that the structured cell inclusions known commonly as Negri bodies are specific for rabies, there have been practically no cultural studies reported; but from verbal reports and demonstrations we know that such studies have been going on in several research laboratories.

Among those most interested in the subject is the research laboratory of the New York City Department of Health, which has been more or less actively engaged in investigations concerning the etiology of rabies since 1897, when practical studies on the treatment of this disease were begun there.

As a culmination of a series of studies on the etiologic side of this question I published several reports[1] in 1904 and 1906 dealing chiefly with the nature of the Negri bodies, in which it was shown that the evidence presented was strongly in favor of a specific protozoal cycle of development in these bodies. I therefore, wisely or unwisely, gave them a generic and specific name, *Neurorrhyctes hydrophobiae*. The chief points, first brought out in these papers, which led to this conclusion may here be briefly recapitulated:

1. By a new method for the examination of rabies brains (the smear method) Negri bodies show distinct characteristics in both morphology and stain.
2. Their morphology is constantly cyclic, that is, a definite series of forms indicating growth and multiplication can be demonstrated: small, single, rounded or oval plastin-staining forms containing from one to several minute chromatin-staining granules; similar forms in twos or groups; larger forms containing a definite central or eccentric chromatin mass (nucleus); forms with smaller chromatin masses arranged in a ring about the central mass; evidence of division of these larger forms as well as of the smaller ones; segmentation of chromatin and distribution of nuclear-staining material throughout the whole organism; division of the organism into many minute bodies, and finally, from the beginning of the appearances of the smaller masses of chromatin, all stages of budding, a phenomenon which accounts for the appearance in the same cell and at the same time of both large and small forms, and also helps to account for the rapid spread of the organism and for forms small enough to pass certain filters.
3. In rabbit "fixed virus," besides the few larger forms seen by others, very many extremely minute forms are found, within most of which are seen in well-fixed and stained preparations a single chromatin granule.
4. With stains such as Giemsa's the lightly basophilic property of the "cytoplasm" of the bodies and the chromatin-like

---

* From the Division of Laboratories, New York City Department of Health.

[1] Williams, Anna Wessels: Discussion of Pathologic Studies in Rabies, Proc. New York Path. Soc., 1904, iv, 107; Negri Bodies with Special Reference to Diagnosis, ibid, 1906, v, 155; Studies in Hydrophobia, *ibid.*, 1906, vi, 77. Williams, Anna Wessels, and Lowden, May Murray: The Etiology and Diagnosis of Hydrophobia, Jour. Infect. Dis., 1906, iii, 452.

nature of the contained masses and granules are brought out in smears better than in sections.

5. Negri bodies are found in all parts of the infectious central nervous system, beginning to appear in the large nerve cells as extremely minute forms before the beginning of symptoms; *that is*, on the fourth day in fixed virus infections and on the seventh day in rabbits inoculated with street virus; thus they were found early enough to account for the infectivity of the host tissue.

Most of these findings were confirmed by a few investigators immediately following their publication. Recently Watson[2] added his corroboration and states that he found in addition spore-like bodies similar to myxosporidian spores.

No one has yet brought forward clear evidence against these findings of a definite cycle of development.

Recently there appeared Dr. Noguchi's announcement on the cultivation of the parasite of rabies.[3] This announcement unfortunately leaves us with no more exact knowledge of the cultivation of the rabies organism than we had before.

Naturally, with the idea of the protozoal nature of the Negri bodies in mind, I have made attempts to grow them in artificial culture mediums supposed to be suitable for pathogenic protozoa, but results so far have been either too unsatisfactory or too unfinished for publication. Others have tried newer culture methods also with negative results. Thus Poor and Steinhardt[4] state that they are unable to obtain evidence of growth by the living tissue method of culturation. A few suggestive ideas, however, have been obtained from some of the observations made during my studies, which, in order to discuss Noguchi's report, may be published now.

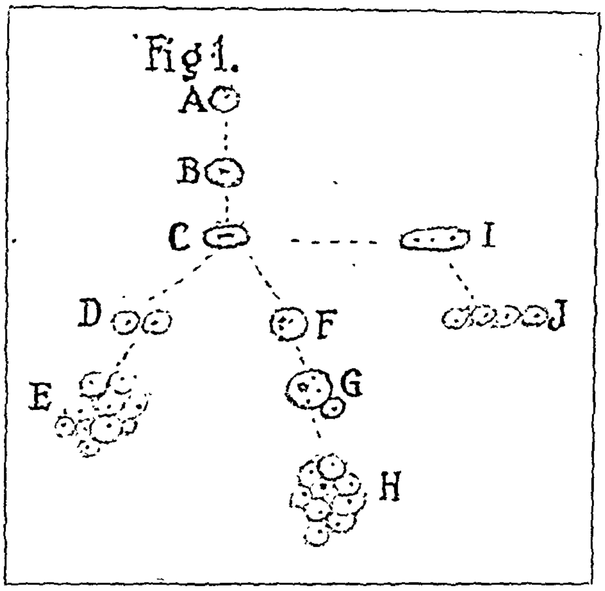


Fig. 1.—From rabbit "fixed-virus" brain; *a, b, c, d, f* and *i*, types of Negri bodies seen at death of rabbit; *c, g, h* and *j*, apparent multiplication and segmentation of the bodies after three days at 24 C. *All drawings in this illustration and Figure 2 made from smears stained by Giemsa's method and magnified about 2,000 diameters.*

In the first place, it may be stated that no change of mind has been necessary concerning the varieties and arrangements of the Negri bodies as shown in my plates published in 1906. Such forms are still called "typical Negri bodies."

The observations may be divided into two groups: (I) changes in rabid brains after death of animal and (II) passage of virus from culture to culture.

I. CHANGES IN RABID BRAINS AFTER DEATH OF ANIMAL

When brains containing "typical Negri bodies" are kept, free from contamination, either at ice-box (12 C., 53.6 F.), room (24 C., 75.2 F.) or incubator (36 C., 96.8 F.) temperature certain changes occur, more slowly at the lower temperatures.

First, in rabbit "fixed virus" brains which on removal from an animal dying or dead from rabies usually show only the minute forms (Fig. 1, *a-d*), in about twenty-four hours at 36 C., forty-eight hours at 24 C. and three days at 12 C., some of the larger forms appear (Fig. 1, *f, g, d*) and more definite groups of smaller forms (Fig. 1, *c, h, j*). Some of the groups seem to be surrounded by a sort of membrane taking a *mixed chromatin and* plastin stain, and others seem to be free. These segmented bodies *remain longer* at the lower *temperatures and disappear when the brain becomes much softened.*

Secondly, in "street" and "passage" virus brains, many of the large forms appear to become *distinctly separated into smaller forms, some within a "membrane" and some* in free groups (Fig. 2, *a, h*).

These changes are seen more clearly in brains left in the skull of the animal or in brains excluded from the air by some method such as pouring agar or serum over them. Animals sent in for diagnosis, which have been buried for some time during cool weather, may show these changes quite distinctly.

By animal inoculations with dilutions, material with these segmental-like forms seems to have gained somewhat in virulence. Whether it is a real gain by an actual increase in the number of organisms, or whether higher dilutions are more virulent simply through the breaking up of groups of organisms, thus allowing more even distribution throughout the diluent, has not been decided.

II PASSAGE OF VIRUS FROM CULTURE TO CULTURE

The last cultural method tried is a modification of the tissue-medium method employed by me[5] in obtaining pure cultures of amebas from amebic dysentery.

A thin slice of fresh sterile guinea-pig's brain was placed on freshly made protozoan-agar (Musgrave and Clegg, 1904) plates over a piece of rabbit "fixed-virus" brain the size of a pea. Over this mass was then placed *a thick layer of protozoan agar.* This was kept at about 25 C. (77 F.).

Transplants were made at the end of seven days by removing the agar, stirring up the mass, transferring about one-fourth *of it to a fresh* agar plate and covering *with fresh* brain tissue *and* agar as before. After each transplant some of the brain mass (about the size of a pea) was made into an emulsion with 5 c.c. normal salt solution, and two drops of this emulsion were inoculated intracerebrally into guinea-pigs. The pigs came down with typical rabies after the inoculation of the fourth culture generation in all of the three series so far tried. By the fifth transplant in these series *the material* was contaminated, and the inoculated animals did not come down with rabies. The question of dilution of the virus was of course considered, but here again the controls *have not* yet been sufficient to make *sure that* some growth, however *slight, did* not take place.

---

2. Watson, Ernest M.: The Negri Bodies in Rabies, Jour. Exper. Med., 1913, xvii, 29.

3. Noguchi, Hideyo: Contribution to the Cultivation of the Parasite of Rabies, Jour. Exper. Med., 1913, xviii, 314.

4. Poor, D. E., and Steinhardt, Edna: Two Methods for Obtaining a Virus of Rabies, Freed from the Cells of the Host and from Contaminating Organisms, and Application of *These* Methods to Other Filterable Viruses or Glycerin-Extracts, Jour. Infect. Dis., 1913, xii, 202; abstr., The Journal A. M. A., April 5, 1913, p. 1106.

5. Williams, Anna Wessels: Pure Cultures of Amebas from Intestines of Mammals, Jour. Med. Research, *1911*, xx, 263.

The larger apparently broken-up Negri bodies (Fig. 1, *c-j*) could not be found except in cases in which the possibility of having a piece of the original brain material in the smear could not be ruled out.

Of course in each brain mass "pleomorphic chromatoid granules" arose, but so did they in the controls, and no difference could be determined between them except that they were somewhat fewer in the controls.

Noguchi says that in culture mediums similar to that employed for the cultivation of the spirochetes of relapsing fever (are we to infer from this that it was the method he found best for these spirochetes, or one of the others, or all?) "very minute granular and somewhat coarser pleomorphic chromatoid bodies arise which on subsequent transplantation reappear in the new cultures through many generations."

Here is nothing definitely new. From Pasteur down, nearly all investigators on this subject have stated at one time or another that minute and coarse granular pleomorphic bodies are the cause of rabies, and any observer may see granular bodies answering to Noguchi's description, arising in uninoculated tissue mediums after the tissue has undergone a certain amount of degenerative change.

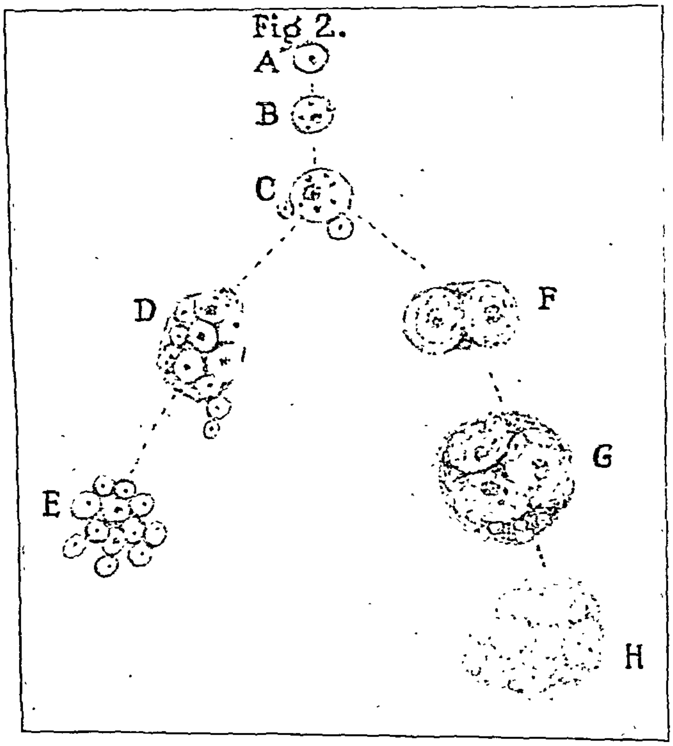


Fig. 2.—From dog "street-virus" brain; *a*, *b*, *c* and *f*. types of Negri bodies seen at death of dog; *d*, *e*, *g* and *h*, apparent multiplication and segmentation of the bodies after three days at 24 C.

Noguchi continues: "On four different occasions I observed in the cultures from "passage" and "fixed" virus nucleated round or oval bodies surrounded with membranes totally different from the minute granular bodies, although arising in the cultures in which the latter occurred."

Is it certain that these bodies are not merely segmented bodies which are carried over from the original material? We cannot be sure, since no mention is made of culture generations in Noguchi's article, except in the description of the illustration, in which the only note is that two of the observations were made on "a culture (second and fourth generations, five days old)."

In regard to the specific virulence of his "cultures" Noguchi says, "By inoculating cultures containing the granular, pleomorphic or nucleated bodies, rabies has been produced in dogs, rabbits and guinea-pigs."

Here again the culture generation is not stated. Furthermore, as nothing is said about the amount of material transferred, or about the number of days before the transfer is made or about control dilutions in testing virulence, the question may be raised as to whether the positive results asserted were not due to dilution of the original material rather than to continued growth and division of a specific organism. It is hoped that later reports, by making clear these details, will help decide this question.

A CLINICAL REPORT OF SEVEN CASES OF HYDROPHOBIA

TOGETHER WITH A CASE CLINICALLY SIMILAR, WITH RECOVERY FOLLOWING THE INJECTION OF QUININ *

D. L. HARRIS, M.D.
ST. LOUIS

The following seven cases of hydrophobia (Cases 1-7) are reported because of the persistent assertions of so many misinformed persons that no such disease exists, and because of the strenuous opposition which these make against any plans looking toward the elimination of the dog nuisance. Unfortunately, this opposition has the support of a few members of the medical profession and of several widely circulated newspapers. The efforts of the Health Department of St. Louis to lessen the danger of rabies by the capture of stray dogs and the temporary muzzling of owned dogs have been greatly hindered by the editorial opposition of two of the local papers. It is hoped that the brief clinical review of the seven deaths here recorded may in a measure add strength to the documentary and experimental evidence of the existence of hydrophobia, and give pause to those opponents who desire light.

I have also added to these cases the record of a patient (Case 8) whose clinical symptoms were strikingly similar to the others, and whose recovery followed the intravenous injections of quinin and urea hydrochlorid. Although in the latter case biologic proof of the existence of rabies is wanting, I am disposed to regard the diagnosis of hydrophobia as correct and attribute recovery to the drug employed.

REPORT OF SEVEN FATAL CASES

CASE 1.—W. U., aged 12, was bitten, May 18, 1911, by a rabid dog. The injury consisted of two deep punctured wounds on the forehead, one of these just over the supra-orbital notch, 1 cm. long. The wounds were cauterized within an hour with a stick of silver nitrate. Antirabic treatment (Pasteur) was begun on the following day and continued for fifteen days.

On June 18, the twelfth day after the last injection, the twenty-eighth day following the injury, the boy was nauseated and vomited several times. The following day he attended school but felt ill all day and complained of a severe headache. In the evening his physician was called and found him very restless and in great mental distress. He slept but little that night and symptoms steadily increased. Forty-eight hours after the onset he was unable to remain in bed. He ran excitedly around the house, screaming, moaning, groaning and beating his hands against the wall and furniture.

Short periods of comparative quiet alternated with others of pronounced manic restlessness. The saliva flowed freely, was tenacious and ropy, and smeared over his lips and chin. In the periods of relaxation he talked rationally and spoke of his approaching death.

---

* From the Municipal Laboratory of Pathology and Bacteriology, St. Louis.

On the third day his restlessness was uninterrupted, convulsions were frequent, he developed delusions and was mildly delirious until his strength gradually failed and he died seventy-two hours after the onset.

Though intensely thirsty, the patient was seized with spasmodic contracture of the pharynx at every effort to swallow. He suggested and tried various devices to drink. He would, for example, close his eyes to avoid the sight of the glass, or he would try to bring it to his mouth suddenly before a spasm would come on. But before he could complete the motion his arm would tremble violently and then stiffen, his pharyngeal muscles contract and his whole body would be held in a rigid spasmodic seizure.

During the twenty-four hours preceding his death he was given six hypodermic injections of morphin sulphate, ¼ grain each, and 80 grains of chloral hydrate by rectum. The only effect of those was to lessen the severity of the convulsive seizures, which came more and more frequently.

No Negri bodies were found in the brain, but rabbits were inoculated with the medulla and all of these died within three weeks. Negri bodies were abundant in all of these.

Case 2.—On Aug. 3, 1911, G. B., a well-nourished, well-developed Irishman, aged 51 years, walked into the laboratory, having been sent to me by his physician who had not intimated to him the nature of his trouble. On being questioned, the patient said that for two nights he had not slept, that he was nervous and worried, that he had a severe pain radiating down his left arm, and that for the past twenty-four hours he had some peculiar trouble in his throat whenever he tried to swallow. I asked him the cause of a small and insignificant scar on his little finger and he replied that some time during the latter part of April he was bitten by a stray bulldog that had attacked his cat. In driving the dog away it had bitten him on the finger. The wound was not cauterized. On further questioning he admitted a strong aversion to water, even to the thought of drinking it. He was quite convinced, however, that there was no relation between the insignificant dog bite and his present "nervousness."

The symptom of hydrophobia was acutely developed in this case. The suggestion of a bath on admission caused him to tremble from terror and fear. Some hours later the question of a physician, "Have you passed any water to-day?" was sufficient to start a general convulsion. In spite of this and the patient's clear mental grasp, he did not once associate his condition with the dog bite, nor did he recognize his disease as hydrophobia.

On admission to the City Hospital he rapidly became more restless and hypersensitive to noise, light and drafts of air. Convulsive movements became pronounced, notwithstanding repeated injections of morphin (5½ grains in twenty-four hours) and enemas of chloral hydrate. Twenty-four hours after admission he was seized with a prolonged and general convulsion, after which he rapidly weakened, followed by diaphragmatic paralysis and death August 4, thirty-four hours after admission, and eighty hours after the onset.

A necropsy was held, but the only gross pathologic lesion found was a congestion of the meninges. No Negri bodies were found in the brain, but two rabbits were inoculated with an emulsion of the medulla. These died within three weeks of dumb rabies, and in the brains of both Negri bodies were numerous.

Case 3.—Feb. 14, 1912, I was invited to be present at a coroner's necropsy on a woman who had died in convulsions. A physician, who had been called in a few hours before death, had pronounced the case one of hydrophobia. The following history was obtained:

A. W., a middle-aged woman, was bitten, Dec. 25, 1911, by a stray dog which her little daughter had found on the street and had brought into the house. After biting the woman, her husband and her daughter the dog was put out of the house and disappeared. The wound was not cauterized.

Five days before death the woman developed a marked pain and itching on her right leg. At the same time she became very excitable, extremely restless and could neither sleep nor remain quiet. A physician who saw her at that time reported that he regarded it as a case of hysteria and prescribed a mild sedative and a local treatment for the itching of the leg. He did not suspect hydrophobia. Her condition grew worse, she became delirious, fought, screamed and was restrained with great difficulty. Another physician was called and found that she could not swallow. Her death occurred a few hours later.

At the necropsy both legs were excoriated and covered with deep scratches. There was a small scar over the left ankle, with a pronounced cicatricial induration. The meninges were congested, otherwise there were no gross pathologic changes. Rabbits injected with an emulsion of the brain developed paralysis and died three weeks later. Their brains contained many Negri bodies.

Case 4.—H. M., a white man, aged 18, was admitted to the City Hospital, May 22, 1912, with the following history:

April 20, while urinating behind a large signboard, he was bitten on the glans penis by a stray dog. The wound was not cauterized. He at once began reading about the symptoms of hydrophobia, and when a week previous to his admission he began to be restless and nervous and to talk about having hydrophobia his family attributed his condition to worry and fear, and he was given bromids by the family physician. When he attempted to urinate he would have a seminal emission.

Immediately after his admission he was examined by two very competent neurologists. He was rational, but at frequent intervals there were convulsive movements, during which he would throw himself about the bed, seize his throat with both hands and complain that he could not breathe. After such attack he would expectorate large amounts of saliva. These seizures came on every two or three minutes, and a diagnosis of hysteria or pseudohydrophobia was made. He was given ¼ grain morphin sulphate and placed in a quiet, dark room. Four hours later he had a severe convulsion and died suddenly.

At the necropsy the only pathologic condition found was a greatly congested left lung, with large petechiae over the pleural surface. The brain was moderately congested. There was an old healed scar 3 mm. long on the glans penis. No Negri bodies could be found in smears of the cortex, the cornu ammonis or the cerebellum, and none could later be demonstrated in sections. Three rabbits were inoculated subdurally with the brain, and all developed paralysis during the third week. In all the rabbits Negri bodies were abundant in smears of the cornu ammonis.

Case 5.—June 14, 1913, H. C. H., a man, aged 80, walked into the laboratory and stated that he had come to have an examination made to determine whether or not he was developing hydrophobia. He said that three weeks before he had been bitten on the right wrist by a stray dog. The wound was slight — a single tooth-wound — healed promptly without cauterization and he had given the incident no further thought.

June 11 he did not feel so well as usual and there was or seemed to be a peculiar odor about water which made drinking very difficult. This dislike for water soon extended to milk, beer and all liquids, and later to solid food. He slept but little the night of the 11th and 12th and not at all on the night of the 13th. Partly because of his extreme thirst and partly from something which he could not explain, he became very nervous and irritable. "Choking-spells" developed on the 13th, especially when he lay down, so that he could rest only when sitting in a chair.

As he talked of his condition, his voice and manner indicated a slight excitement. When he lay down on the examining-table he had a spasmodic contraction of the throat muscles that momentarily suffocated him. The pulse was normal, of good quality and there was no apparent fever.

A glass of water placed before the patient produced a most striking excitement. He could look at it from a distance calmly, but could not, try as he might, bring himself to approach nearer. When, unexpectedly, the water was suddenly placed before him he recoiled in a paroxysm of fear, clutched his throat, and for a few moments breathed spasmodically and with great difficulty. He tried to drink milk, but, as he siezed the glass in his hand, he turned his face away and his arm trembled so violently that the contents were shaken to the floor. He had not the control of his muscles to bring the glass to his mouth.

He was advised to enter the hospital, which he did four hours later. On admission he was found to have a temperature of 103.4 and a pulse of 128. He was very irritable and excited and restless. Morphin hypodermically and chloral hydrate by rectum quieted him for short periods. Respiration was difficult at times. He died twelve hours after admission.

At the necropsy no gross lesions were found. There was a moderate congestion of the meninges. Negri bodies were numerous in the cornu ammonis, and two rabbits inoculated with parts of the brain developed paresis during the third week. In the brains of these rabbits Negri bodies were also found in numbers.

Case 6.—E. A., a white girl aged 13, was bitten, May 20, 1913, by a neighbor's dog which became so irritable and dangerous that on the following day it was shot by a policeman. Neither the owner nor any one else thought the dog had rabies and no report was made to the laboratory. The injury consisted of one punctured wound on the instep of the right foot, the dog's tooth passing through a shoe and stocking. The wound was not cauterized, healed readily, and no further thought was given to the accident.

July 4, forty-five days after the bite, she attended a picnic but came home in the afternoon complaining of a headache and a pain in her throat on swallowing. She was assured by her family physician that there was no connection between this and the bite. She could not sleep that night and on the following day developed a marked fear of water, was very restless and irritable, and was brought to the hospital twenty-four hours after the onset. She was then extremely restless and nervous, with marked hyperesthesia. She could not swallow. Morphin and chloral were administered. Six hours after admission she was seized with general convulsions and died from exhaustion one hour later.

The necropsy showed no gross changes other than congestion of the meninges. Four rabbits were inoculated with the brain. One developed paresis in the hind quarters on the eighteenth day, another became similarly paralyzed on the thirty-fifth day and died on the forty-first. No Negri bodies were found in the patient's brain. In the second, third and fourth rabbits Negri bodies were numerous and relatively large.

Case 7.—L. S. P., a farmer aged 52, was attacked by his own dog, July 1, 1913, thrown to the ground, and badly bitten on the hand and wrist. The hand was severely mangled and there were punctured wounds on the wrist. The wounds were dressed with an antiseptic, but *not* cauterized. Five days later, July 6, antirabic treatment was begun, the examination of the dog's head having revealed the presence of Negri bodies.

July 21, twenty days after the injury and fifteen days after the first injection, the patient's hand and arm became very painful. The pain, which was so severe that he could not sleep, continued for forty-eight hours, and on the 23d extended over his shoulder, back and arms. On the 24th he was very nervous, restless and suffering intensely. On the 25th he had difficulty in swallowing, and he was mildly delirious at times. Paralysis had developed in the arm, and he was extremely hypersensitive to touch. He talked constantly and was extremely restless, though no convulsions were noted. He was from the first given large doses of morphin hypodermically.

On the 27th he became more quiet, paralysis and exhaustion grew more pronounced and he died six days after the onset of the first symptoms. No post-mortem was made.

Of these seven cases, necropsies were held in six. Prolonged and careful search of the brain in Cases 1, 2, 3, 4 and 6 failed to reveal a single Negri body, though many smears and sections were made of the cortex, basal ganglia, cornu ammonis, medulla oblongata and cerebellum. In Case 5 Negri bodies were large and abundant. Brain substance from each case was injected into two or more rabbits and all of these without exception developed a paralysis typical of the disease and died. In the brain of every animal Negri bodies were abundant and easily recognized. The shortest period of incubation in the rabbits was twelve days, the longest thirty-five days.

REPORT OF CASE TREATED WITH QUININ

Case 8.—*History.*—C. B., a white man, aged 73, an itinerant umbrella mender, walked into the laboratory Aug. 29, 1913, and asked for advice about an old dog-bite which had given him a great deal of pain during the past four or five days. He said that five or six weeks before he had been bitten on the right leg by a dog, but, as his occupation made him a frequent object of attacks by dogs, and as he had had "several hundred" during his lifetime, he gave no special attention to this one. The wound healed promptly without medical attention and he had entirely forgotten the incident.

Four or five days before he had felt a tingling and prickling in the right thigh. Then the scar became more and more painful, and the burning and shooting pains were so great that he had not been able to sleep for two nights. He had eaten nothing for two days, and had not been able to swallow without becoming choked. A glass of water was handed to him, but only after a great effort could he swallow one small sip. An intense and suffocating pharyngeal contraction occurred at subsequent attempts.

He was visibly nervous and anxious, and though no mention was made either by him or by me that his symptoms were in any manner connected with the bite, he later confessed that he was so sure he had hydrophobia that he had not dared ask the question lest I should confirm his suspicions.

He was urged to enter the City Hospital at once for treatment, but refused to do this until he could go back to his home. Four hours later he returned, having meanwhile drunk in saloons as much straight whisky as he could force down his throat. The fact that most of these "bracers" never got farther than his mouth, but were immediately expelled, was to my mind valuable proof of the genuineness of his difficulty in swallowing. On admission to the hospital he was somewhat exhilarated by an acute alcoholism, but the difficulty in swallowing had increased perceptibly.

The physical examination revealed several red and painful scars on the outer surface of the left thigh. The cicatricial thickening and induration around these scars was pronounced and somewhat in excess of that usually observed in ordinary wounds of equal severity. Otherwise, the examination disclosed no physical abnormality. Temperature, 99.2 F., pulse 102, respiration 24. Reflexes normal.

These symptoms warranted, in our opinion, a diagnosis of hydrophobia, and in consultation with Dr. Ralph Kinsella, resident physician of the City Hospital, it was agreed that he should be given injections of quinin as suggested by Moon.[1] Quinin and urea hydrochlorid was chosen because of its solubility.

Treatment and Result.—At 5 p. m., August 29, 15 grains of quinin and urea hydrochlorid, dissolved in 3 c.c. of salt solution, were administered intravenously. This dose was repeated at 7 p. m., 9 p. m., 11:30 p. m., and on the next day at 9:45 a. m. and 11:30 p. m., making a total of 90 grains within twenty hours. Following the second injection at 7 p. m. the patient said all pain in the thigh and over the area of the bite had disappeared. At 7:30, August 29, he drank without difficulty 6 ounces of milk and an equal amount at 11:30 p. m. At 7 a. m., August 30, he drank 6 ounces of milk, 6 ounces of coffee, and ate two crackers and a slice of bread.

He had, however, spent a very restless night, and on account of a fine tremor and a nervousness which suggested delirium tremens, he was given at 9:30 a. m. 4 drams of paraldehyd, and an equal amount at 1:30 p. m. He slept at intervals throughout the day and the following night. He had no return of the pains or the difficulty in swallowing and was discharged September 2, four days after his admission.

---

[1] Moon: The Effect of Quinin on Rabies in Dogs, Jour. Infect. Dis., 1913, xiii, 165.

5. The advantages of ivory plates in transverse fractures are; they fit closely into the fragments; do not loosen up; they are strong enough to withstand any pull made by muscles attached to the fragments; they will not allow angulation, especially if put in at right angles to the greatest tendency of displacement, or, better, at right angles to the greatest pull of the muscles, they will be gradually absorbed, and never act as a foreign body in the bone.

4137 South Halsted Street.

ABSTRACT OF DISCUSSION

Dr. F. J. Cotton, Boston: The first of those plates did not show an osteoblastic absorption, but, rather, a granulation absorption.

Dr. Paul B. Magnuson, Chicago: This plate was practically translucent when I took it out. In six weeks it had softened so much from the absorption of fluids and become tightened into the bone so firmly that it was difficult to get it out. It is eroded at both ends, but little in the middle, at the seat of the fracture. It was just outside the seat of fracture that the greatest erosion took place.

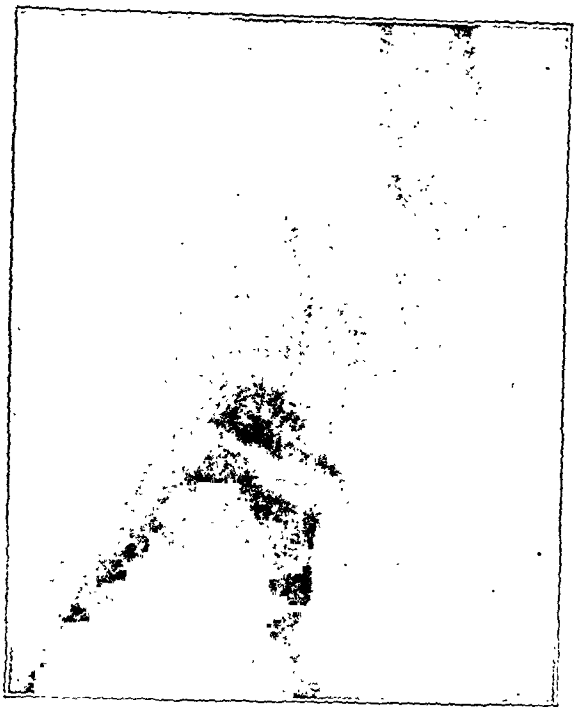


Fig. 8.—Fracture of both bones of the leg.

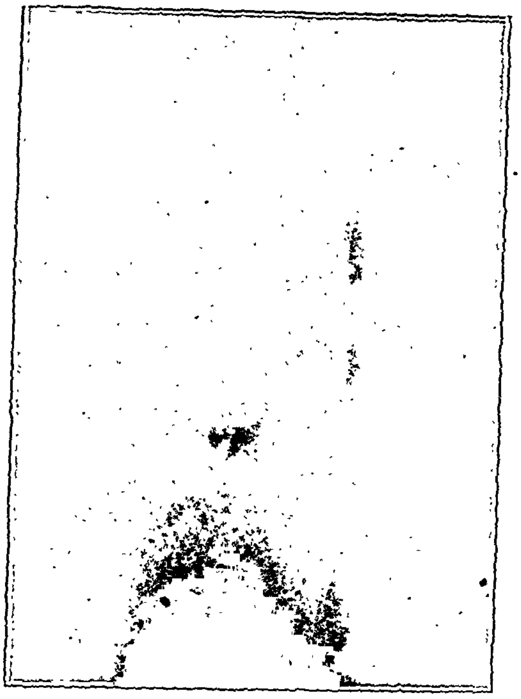


Fig. 9.—Same as Fig. 8, one day after operation. Ivory plate in tibia. Pegs seen as faint shadows on each side of fracture.

Dr. D. B. Phemister, Chicago: Most of the osteoclasts producing absorption of dead bone or ivory are not giant cells, but the ordinary fibroblasts. In my histologic work I have observed extensive lacunar absorption where giant cells were entirely absent.

Dr. John Prentiss Lord, Omaha, Neb.: I should like to have Dr. Magnuson tell us whether he does not think that such work as this would be likely to be undone, unless there is some apparatus for holding the plate securely until the final dressing is applied. It seems to me that there is an opportunity for caution against undertaking to do this work without a fixation apparatus; otherwise I should think that the screws would break in inexpert hands.

Dr. Fred H. Albee, New York: Last year, in the Surgical Section of the American Medical Association, and in the American Orthopedic Association, I reported a scheme similar to this for holding ivory. I have applied it to the femur and other bones, and have had no trouble with breaking of the bone. I have used it as a bone-graft larger in size than this ivory plate; but the bone-plate is in there in an efficient manner mechanically, I believe. Dovetailed, as it is, it holds the fragments efficiently.

Dr. Paul B. Magnuson, Chicago: I agree with Dr. Albee that a live bone-graft is the *ideal* substance. I doubt that it is tolerated by the tissues better, *but it is more stimulating* to the growth of bone than anything else. Unfortunately, we cannot always get a piece of bone to fit accurately. We must do two operations; and few of us are skilful enough to fit a piece of bone into a slot. *It requires great experience in this line of work.* This operation was designed for the use of the average man doing bone surgery, so that he cannot possibly make a mistake. *All that has to be done is to* cut exactly the width *of the space* he wishes to fit the plate into with parallel circular saws, joining the ends of these incisions, and then drill two holes exactly the size he needs; he then has a plate that fits the slot exactly. After the two holes are drilled, put in the ivory pegs at an angle to the plate through *both sides of the bone.* The procedure is mechanically accurate. *The ivory would not, of course, hold on the outside of the bone, because it is not strong enough; but when it is braced by the cortex on each side it will hold, because it is mechanically correct.*

As to Dr. Lord's remark about handling a fracture carefully, of course, this is my baby and my pet, and we are sometimes prejudiced in favor of our own children. Nevertheless, I have maltreated these plates before sewing up the wound, purposely, in order to see whether or not I could pull them loose. I would rather have them come loose at that time than after the patient has gone back to bed, and therefore have taken particular pains to try to break them beforehand; when I put the patients back to bed, I feel sure that the plate will hold its position until the extension apparatus, or whatever I use, is taken off. I have never had the pegs break. There is practically no strain on them. They are put through the upper side of the cortex and there is no leverage to snap them off. If we had leverage, that might happen.

A DISCUSSION OF VARIOUS ANESTHETICS AND METHODS

EXPERIMENTAL OBSERVATIONS *

BERNARD FRANCIS McGRATH, M.D.
ROCHESTER, MINN.

The purpose of this paper is, first, briefly to discuss the present status of the question of anesthetics, secondly, to contribute data from the Mayo Clinic, and, lastly, to present some preliminary observations on an experimental work which is to be continued at length.

A stimulus has recently been applied to the question of anesthesia, which has resulted in a wide-spread interest and in laudable endeavors toward advancement. New anesthetics and various combinations have been employed, apparatus aiming at accuracy has been designed and different routes of administration have been practiced. Commendable and seemingly progressive as are all these efforts, still does not their multiplicity itself emphasize the general state of inefficiency that exists?

---

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Mayo Clinic.

To enumerate and describe the several anesthetics, devices and methods which have been advanced would be an unnecessary repetition, since their details are already known, or at least are easily available in the literature. Each has enthusiastic advocates, but which can withstand the test of time?

It has been authoritatively stated that any of the recognized anesthetics or methods is safe in the hands of an expert anesthetist. In an endeavor to place this phase of surgery on an efficient basis should we not begin by investigating the undermost stones in the foundation? In analyzing these is not the administrator of the anesthetic one of the first to attract our attention? Embodied in the expert are those qualities which are essential for the successful production of anesthesia. He guards against the use of anesthetics which contain impurities; his extensive experience frequently enables him to obviate deleterious psychic conditions preceding the operation; his skill in administering ameliorates the mental and physical disturbances of the initial stages of anesthesia; he avoids the recognized nocuous effects caused by vacillation between a light and deep state, and finally, the expert administers the anesthetic only in amount sufficient for the conditions, thereby reducing to the minimum immediate postanesthetic and remote organic effects.

Crile speaks of "two great classes of association, namely, those that are injurious and those that are beneficial. The injurious kind are called 'noci-association,' that is, nocuous or injurious associations." Crile's scientific defense of his theory, together with his and others' observations of its practical application, is sufficiently convincing to demand serious consideration and a general effort to test its soundness.

Although extrinsic to the patient, yet seemingly comprehended in this principle, are certain other "noci-associations" which, until recently, were nearly omnipresent in the hospitals of this country, and even to-day exist to a culpable degree. I refer to the inexperienced house-officer as the official anesthetist of the hospital, and the indirect detriment which results to the patient through the mental disturbance, and, in consequence, the curtailed efficiency of the operator. The chain of asepsis may be intact, the surgical assistants adequately equipped with skill and discipline, and the surgeon most able; but, with the patient at one period rigid and practically inoperable, the next period assuming an ante-mortem aspect, the operator must necessarily be incapable of his best effort. Therein an injustice has been done, since the benefit to the patient, if the anesthetist be excepted, is not commensurate with the pathologic condition which he presents and the efficiency of his environments.

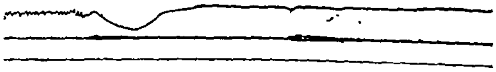


Fig. 1.—No. 635 a. Intravenous ether, 5 per cent. First part of tracing, no anesthesia. Note the result of careful induction and maintenance of anesthesia. Duration one and one-half hours.

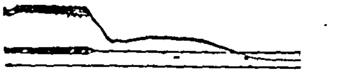


Fig. 5.—No. 615. Intravenous ether, 5 per cent. Showing effect of overdose—"full flow," thirty seconds (190 c.c. solution; ether, 9.5 c.c.). Note continuance of cardiac action (upper line) for about four minutes after cessation of respirations.

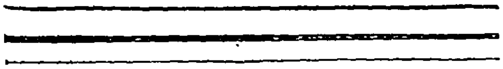


Fig. 2.—No. 635 b. Tracing made at the end of one hour, surgical anesthesia, intravenous ether, 5 per cent.

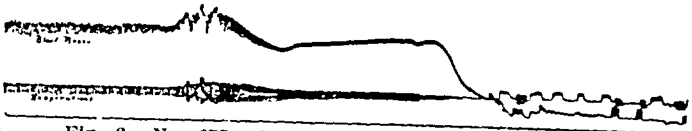


Fig. 6.—No. 675. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note effect of accidental overdose and ineffectual efforts at resuscitation. Total solution, 450 c.c.; ether, 22.5 c.c. Time, six minutes.

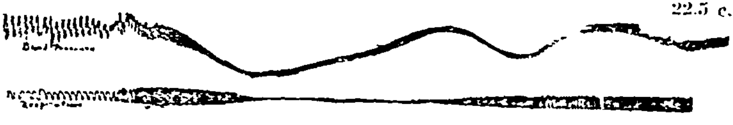


Fig. 3.—No. 681. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note early effects of anesthetic on cardiac action and respirations and relation of respiratory failure to effect on heart. Spontaneous recovery.

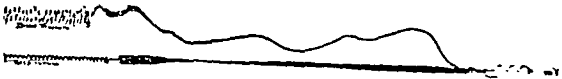


Fig. 7.—No. 672. Intravenous ether, 5 per cent. First part of tracing, no anesthesia. Note induction of anesthesia, practically synchronous cardiac and respiratory failures and ineffectual efforts at resuscitation. Total solution, 300 c.c.; ether, 15 c.c.

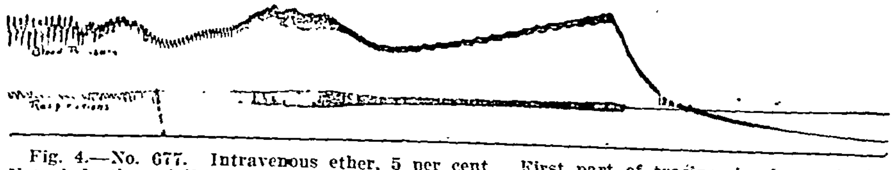


Fig. 4.—No. 677. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note induction of light anesthesia in first and second thirds of tracing. In the last third note effect of "full flow" for twenty seconds (solution, 126.60 c.c., ether, 6.30 c.c.). No recovery. Heart failed about two minutes after cessation of respirations.

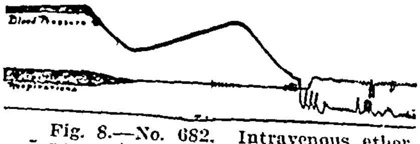


Fig. 8.—No. 682. Intravenous ether, 5 per cent. Note relation of respiratory to cardiac failure and the ineffectual efforts at resuscitation, when artificial respiration, heart-massage and abdominal pressure were begun late. Total solution, 350 c.c.; ether, 17.5 c.c.

The best anesthetic administered by the most expert anesthetist would be the ideal in anesthesia. Such an ideal condition is no more feasible than that every surgical operation be performed with the best technic by the most skilful surgeon. The reasons are obvious. That the expert anesthetist is not now and never will be generally available is self-evident, but that there is a vast territory of the medical field in which such idealism could and should be applied the most skeptical will not deny.

It is but truth to state that medical schools in general have not adequately taught and emphasized this seriously important branch of medicine. In many instances men are graduated with little theoretical and far less practical knowledge of the subject. Just as the student with a bent toward surgery, pathology or any of the other branches of medicine should be encouraged and scientifically trained in that direction, so, too, should the one adapted to the work of anesthesia be similarly encouraged and guided.

One has but to scan the statistical history of anesthesia to note the wide divergence of results. This diversity seems to be due primarily to a lack of parallelism of all the factors concerned. Some of the obviously essential factors in estimating the comparative value of anesthetics and methods are the purity of the drugs, the skilfulness of the anesthetist, a reasonable parallelism in the number of cases observed and the condition of the patients.

The comparative value of the anesthetics more recently advanced and the methods of administering them are at present and for some time must remain in the balance.

It is easily conceivable that some of the more recently advocated methods of inducing anesthesia are positively indicated in some operative procedures, and at least helpful toward efficiency in others. This is particularly true when applied to operations about the head and neck and within the thorax. In this regard the methods of Crile, Meltzer and Auer and others are particularly applicable. The indications for the intravenous administration of anesthetics seem at present to be very limited, although time and research may radically alter this view.

In making a wide survey of the field of surgical achievements, including statistical history, supplemented by the opinions of keen and progressive observers, no other anesthetic or method for application in general is so soundly supported by *time and experience* as ether administered by an expert, with a due allowance of air to the patient. Compared with other anesthetics and methods, ether by the so-called "drop" method is at least as immediately safe, is more available, more economic, and more conducive to efficiency in extensive work. I am not cognizant of data sufficiently reliable and extensive to prove that in the hands of the skilful, the immediate deleterious effect on the condition and comfort of the patient, and the remote effect on the organs of the body are more than those of any other anesthetic or method.

The advancement which is being made in the application of local anesthetics augurs well for substantial aid to surgery along these *lines and this* affords a most fertile field for research. General anesthesia is at best a *fairly* wide deviation from the normal, but, in the present state of our knowledge, is absolutely indicated in many cases. With the scientific advancement of local anesthesia, we may hope to see the number of indications for general anesthesia reduced to a minimum.

Finally, praiseworthy and seemingly progressive as are the various endeavors which are being made in the application of new general anesthetics and methods, nevertheless it appears that one of the most essential steps, if not, indeed, the most essential step, toward placing the question of anesthesia on an efficient basis is the training and encouragement of the skilled anesthetist.

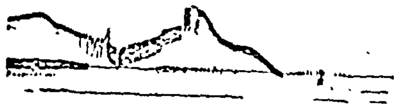


Fig. 9.—No. 683 c. *Intravenous ether, 3 per cent. First third* of tracing shows effects of "overdose"—ether 9.4 c.c. in one minute and epinephrin 3 drops; middle third, temporary signs of recovery, with subsequent failure, despite efforts at resuscitation.

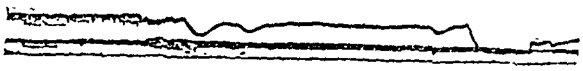


Fig. 10.—No. 673 a. *Intravenous ether, 5 per cent. First part* of tracing, local anesthesia. Note induction in middle third and effect of twenty seconds' full-flow—solution, 126 c.c.; ether, 6.3 c.c.—in last third. Abdominal pressure. Recovery.

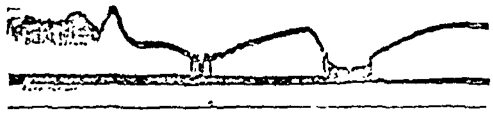


Fig. 11.—No. 633 a. Intravenous ether, 3 per cent. First part of tracing, no anesthesia. Note induction of anesthesia (light). Last of tracing depicts the effects of 30 seconds' "full flow," 4.7 c.c. ether, with spontaneous recovery.

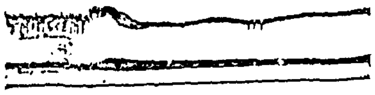


Fig. 12.—No. 688. Inhalation ether, automatic. First part of tracing, no anesthesia. Surgical anesthesia in about two minutes. Note on tracing good result of careful induction and use of air with ether.

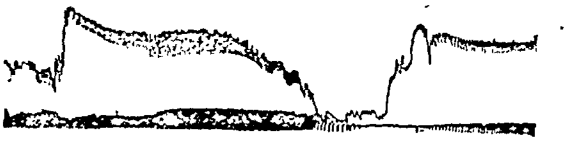


Fig. 13.—No. 319 b. *Inhalation ether, automatic.* Note in middle third of tracing the effect of uneven administration of anesthetic. Upper tracing, cardiac; lower, respiratory. Spontaneous recovery.

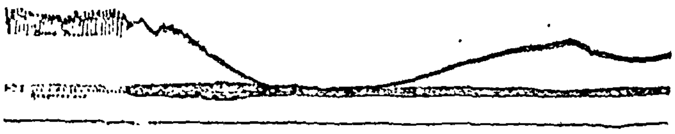


Fig. 14. No. 676. Intravenous chloroform, 1.5 per cent. First part of tracing, local anesthesia. Note effect on cardiac action during induction of anesthesia. Spontaneous return to normal.

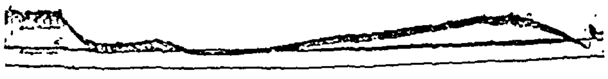


Fig. 15.—No. 657. Intravenous chloroform, 2.5 per cent. First part of tracing, local anesthesia. Total solution, 475 c.c.; chloroform, 11.87 c.c., in eleven minutes. Note cardiac and respiratory failure. Efforts at resuscitation futile.

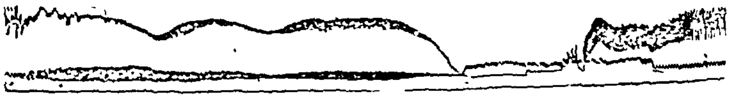


Fig. 16.—No. 621. Intravenous chloroform, 2.5 per cent. Note induction and failure in first and middle third. *Cardiac action* and respirations ceased almost simultaneously. Efforts at resuscitation effectual.

DATA FROM THE MAYO CLINIC

From the year 1900 to the beginning of the present year the respective numbers of general anesthetics administered were as follows: ether, 49,057; chloroform, 1,300; nitrous oxid (usually nitrous oxid-ether sequence), 1,000, and ether-chloroform sequence, 796. The nitrous oxid administrations were made during the years from 1900 to 1904, inclusive. Since 1907 chloroform alone has been employed in one case. The mode of administering ether is the so-termed "drop" method. Besides the before-mentioned, several of the local anesthetics were employed.

No death ascribable to the anesthetic alone has been noted. None of the present anesthetists has even administered a stimulant hypodermically during operation. *Excitement* in the initial stages of anesthesia has been very rarely observed. Postanesthetic effects, such as nausea and vomiting, have been, as a rule, inconsiderable.

PRELIMINARY ADMINISTRATION OF DRUGS

In cases of exophthalmic goiter in which operation was performed without general anesthesia, scopolamin, 1/200 grain, and morphin, 1/6 grain, is used. If a general anesthetic is to be administered, atropin 1/150 grain, is also employed. In operations for ordinary goiter, morphin, 1/6 grain, and atropin, 1/150 grain, are used. In operations on the stomach and rectum, morphin, 1/6 grain, is used. If a patient has had bronchitis or a cold, morphin, 1/6 grain, and atropin, 1/150 grain, is employed. Scopolamin and morphin are administered to quiet nervousness, but apparently as a result increased excitement has been occasionally observed. It is considered probable that following the use of these drugs a smaller amount of the general anesthetic is necessary. In operations on the stomach the preliminary dose of morphin makes it feasible to decrease the amount of general anesthetic during the work in the abdominal cavity. Atropin causes and maintains a dry condition of the upper portion of the respiratory tract and is regarded by the anesthetists as very effective when indicated. Generally speaking, however, ether alone is used, the aforesaid drugs being employed only in exceptional cases under special indications.

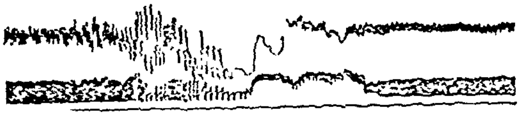


Fig. 17.—No. 217. Inhalation chloroform, automatic. Note primary cardiac and respiratory failure and the effect of prompt artificial respiration by tracheal insufflation. Duration of anesthesia, one hour and four minutes.

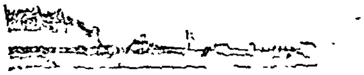


Fig. 18.—No. 687. Inhalation chloroform, automatic. Note early cardiac failure and futile efforts at resuscitation.

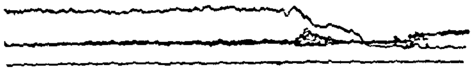


Fig. 19.—No. 634. Intravenous ether, 5 per cent. First and second thirds of tracing, no anesthesia. Last third shows effects of air entering tube during induction of anesthesia—about 100 c.c. air. No recovery, despite efforts at resuscitation. This indicates the danger of a defective apparatus.

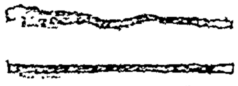


Fig. 20.—No. 683 b. Intravenous ether, 3 per cent. Surgical anesthesia. Tracing shows absence of evil effects when tube to vein is completely severed while solution is flowing.

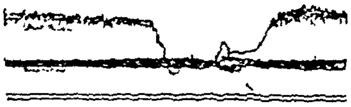


Fig. 21.—No. 665. Local anesthesia. Air-embolism syringe, 60 c.c. air, in fifteen seconds. Spontaneous recovery.

The object aimed at is to guard against impurities in the anesthetic, to induce anesthesia with the least possible mental and physical disturbance of the patient and to employ the smallest amount of anesthetic consonant with an even surgical anesthesia.

As may be gleaned from an analysis of the records, ether by the drop method, in the hands of skilled anesthetists, indicates the position of the Mayo Clinic on the question of general anesthesia. The present tendency of the clinic is toward amplifying the employment of local anesthetics.

EXPERIMENTAL OBSERVATIONS

During the past three months I have been pursuing experimental investigations on the subject of general anesthesia. The work thus far done is admittedly academic, but designedly presented at this stage not so much for discussion of the indefinite results obtained as for criticism of the procedure as a method of studying and teaching the subject. The object in view is to continue the work at length, investigating the various recognized anesthetics and methods, whatever new may be advanced, studying not only immediate but also remote effects on the organism, and prolonging the work in series sufficiently extensive for deductions of practical value.

One hundred and fifty-three experiments have thus far been undertaken on 145 dogs. The anesthetics employed are ether, chloroform, paraldehyd, combined paraldehyd and ether, urethane, and nitrous oxid-oxygen-ether.

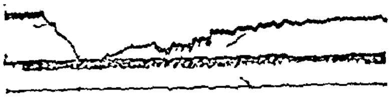


Fig. 22.—No. 408. Intravenous ether, 5 per cent. Note effect of air-embolism—syringe, 100 c.c., air in fractional injections in first part of tracing. Spontaneous recovery. Light anesthesia.

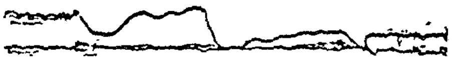


Fig. 23.—No. 649. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note induction of anesthesia in first third of tracing, effect of air-embolism, about 60 c.c. slowly, in middle third. Spontaneous recovery, light anesthesia, but sudden cardiac and respiratory failure after a small dose of ether. Unsuccessful efforts at resuscitation.

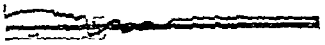


Fig. 24.—No. 673 b. Intravenous ether. Air-embolism—50 c.c. air in fractional doses, few seconds apart. Compare effect on heart, upper line, with respirations. Spontaneous recovery.

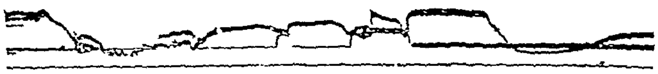


Fig. 25.—No. 646. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note early respiratory and later cardiac failure. Efforts at resuscitation successful. Air-embolism, about 70 c.c., slowly injected. Shown in last third of tracing. Spontaneous recovery.

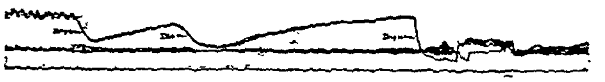


Fig. 26.—No. 637. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. Note cardiac action and respirations during induction of anesthesia. Final third of tracing is a picture resulting from an injection of about 50 c.c. air into femoral vein, tracheal insufflation of air and abdominal pressure. Recovery during light anesthesia.

The methods of administration used are the intravenous, automatic inhalation, insufflation and rectal. Kymographic records of cardiac action and respirations have been constantly made. Owing to the brevity of the time and the extent of the work, the investigation of some of the anesthetics and methods has been too limited for presentation.

Ether has been administered intravenously 85 times, chloroform 19, paraldehyd 2, and combined paraldehyd and ether 3; by the pulmonary route, ether 27 times, and chloroform 8. Besides these experiments, a series of histologic examinations has been begun for the purpose of studying the effects of the various anesthetics on the tissues of the body. An endeavor will be made to make this work as complete as possible, and sufficiently extensive for data of value. Although some excellent observations have been reported on this phase of the subject, still it seems that in general attention has been mainly focused on the immediate deleterious effects of anesthetics, somewhat to the neglect of their remote effects on the organism.

In the present limited series the procedure has been to study immediate effects during the induction of anesthesia, the results of overdosing, uneven administration, anesthetics with probable impurities and the efficacy of various methods for resuscitation applied early and late in cardiac and respiratory failure, such as insufflation, abdominal pressure, heart-massage and stimulating drugs injected directly into the circulation. With local anesthesia it has been practicable to obtain normal tracings of cardiac action and respiration for comparison with the various phases of the tracings which followed.

The intravenous method has been employed 109 times. In normal saline solutions the following strengths of anesthetics have been used: ether, 5 and 3 per cent.; chloroform, 2.5 and 1.5 per cent.; paraldehyd, 2 per cent.; ether, 5 per cent., and paraldehyd 1 per cent. Hedonal and other anesthetics will be added to the list in the further progress of the work, and Ringer's solution will replace the saline solution which has been used.

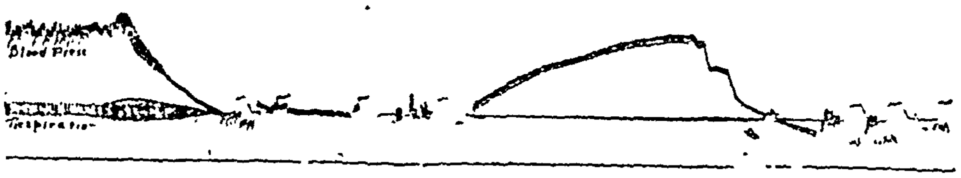


Fig. 27.—No. 678. Intravenous ether, 5 per cent. First part of tracing, local anesthesia. In first third of record note very early cardiac and respiratory failure. In middle third effectual efforts at resuscitation. In last third fatal effect of air-embolism —about 60 c.c. air within twenty seconds Help ineffective.

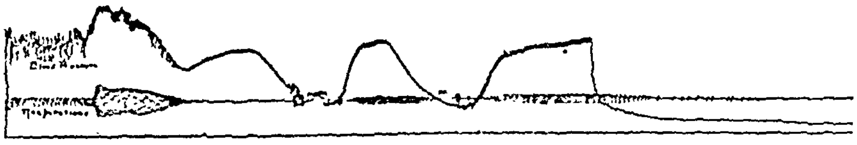


Fig. 28.—No. 674. Intravenous ether, 5 per cent. First part of tracing, no anesthetic. Note primary anesthesia with early respiratory failure and its relation to cardiac failure. Artificial respirations and heart massage; recovery and again failure on adding small amount of ether. Recovery with help. Air-embolism—60 c.c.—syringe. Sudden and fatal cardiac failure. Slight spontaneous efforts at respiration toward end.

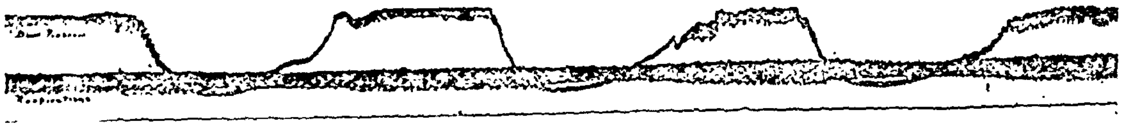


Fig. 29.—No. 680. Inhalation ether, automatic. Light anesthesia. Total amount of air injected into femoral vein, about 300 c.c. First drop is effect of 100 c.c. air in twenty seconds, second and third drops, 100 c.c. in fifteen seconds each. Note that respirations are little affected. Recovery, but animal died two days later. Air in heart and quite generally in veins.

AIR EMBOLISM

The question of air embolism has been studied in association with the experiments on intravenous anesthesia. This has consisted of the injection into the femoral vein of large amounts of air, from about 50 to 100 c.c. at once, and large amounts fractionally. Observations on the effects of air embolism have been made with local, light and deep general anesthesia.

As previously intimated, the results of experimentation will not be discussed at this time. A clearer idea of the plan of the work is better seen depicted on the limited number of the accompanying kymographic records.

ABSTRACT OF DISCUSSION

Dr. Torald Sollmann, Cleveland: The paper has helped to confirm some conclusions I had formed on this subject. Any anesthesia is a departure from the normal. For that reason it is impossible to expect that we shall ever find a "fool-proof" anesthetic. The improvements that are needed are in intelligent use. With intelligent use the present anesthetics will suffice to produce relatively safe anesthesia. The safety is proportional to the intelligence with which the anesthetic is administered. For intelligent administration as many positive data as possible are necessary and the present investigation helps to this end.

Dr. Alexander S. von Mansfelde, Ashland, Neb.: I have perhaps been placed most happily in my work in surgery, for the reason that I had an unusually fine anesthetist, my wife, who gave chloroform for me for thirty years. I never for a moment had to think of my anesthesia when I operated. Three times in my career it has happened to me that my patients came near dying, although only one of them gave me a great deal of work. Some of you who are informed on anesthesia know of the report of the Hyderabad Commission in England. The essence of that great piece of work seems to have been that it was a difference in the temperature, of moisture and warmth, that made the commission endorse chloroform above all other anesthetics. After reading that report carefully, I concluded that I would try out the work of that commission and I made what is called in physics a moteless chamber of my operating-room. I superheated it a short time before the operation and had it intensely moist and let it come down to a temperature of 103 or 104 F. and kept it there. Remarkable as it may appear, I had no shock in severe abdominal operations when the temperature was from 103 to 104 F. I never, under any circumstances, had the bad results which are said to accompany anesthesia, and that was because the anesthetist gave medicinal and not poisonous doses of the chloroform. You cannot conceive the necessities that come to the surgeon as they came to me in the early history of the state of Nebraska, where I had to be everything and do everything in an operation, many times under conditions and circumstances that you will think abominable. Yet I lost no one from chloroform anesthesia. Now who would be able to go and do a rather lengthy and severe piece of surgery with absolutely no assistant whatever except the farmer's wife or daughter picked up for the occasion? Who of you would undertake to perform a difficult and lengthy operation with ether with an inexpert person to give it?

Try it and see what you think of it. With chloroform I could watch the giver; I could not with ether. I would emphasize again the fact that medicinal doses of chloroform are perfectly safe. I removed an ovarian tumor and my wife gave just 2 drams of chloroform during the whole operation. I did the operation in just nineteen minutes. The point I make is that the surroundings of the case are most important. The atmosphere, if it can be brought to the condition of the Hyderabad temperature and climate, will produce the same effect on the use of the chloroform here as it had there. The sum total of it is that someone who knows how should give chloroform in the best possible surroundings and never beyond a medicinal dose.

Dr. Clyde Brooks, Pittsburgh, Pa.: In regard to the method of giving anesthetics I would speak of a method we used in giving it to animals. I found that valves produced more or less resistance and partial asphyxia.

In the method I have employed there is a cannula inserted into the trachea, with side opening with a rubber connection with a screw-clip for regulating depth of anesthesia. Next there is a side-tube which dips under oil or some such liquid which forms a liquid valve to allow outflow but prevent inflow. Next there is a tube that dips under the ether in the ether bottle and forms a liquid valve which allows inflow, but not outflow. During inspiration the air would flow through the liquid-ether valve, and into the lungs of the dog, whereas during expiration the ether-liquid valve would close and the expired air would flow out through the oil-liquid valve. This offers slight resistance and, in fact, the least resistance of any method that I have employed.

Dr. McGrath alluded to "the Meltzer insufflation method." I would ask whether he was under the impression that Dr. Meltzer originated the essential points in the method employed by Dr. McGrath? Some have maintained that Meltzer's name should not be used to designate the method.

Dr. B. F. McGrath, Rochester, Minn.: In applying the name "Meltzer" to the method of insufflation, I did not have the question of priority in mind. To say the least, the investigations of Meltzer and Auer have added a stimulus to and amplified the application of this principle.

THE RELATION OF POLITICS TO THE STATE CARE OF CRIPPLED AND DEFORMED *

H. WINNETT ORR, M.D.
Superintendent and Assistant Surgeon Nebraska Orthopedic Hospital
LINCOLN, NEB.

It affords me much pleasure to read, in Minnesota, a paper on the relation of politics to the state care of the crippled and deformed, for it was the first of the United States to provide state care for these patients. The whole modern movement, which has for its motive the prevention of dependency, finds no better expression than along the line which aims to convert deformed or crippled children into independent and self-supporting persons. Many of the physical infirmities which these patients have are not susceptible of complete cure, but a considerable majority of all persons so affected may, by suitable surgical and mechanical treatment and by especially adapted methods of education, be rendered capable of self-support.

There are many reasons why the care and education of crippled children is naturally a state function. It has long been considered that the education and training of normal persons is a profitable thing for cities and states to do, but it is certain that a much larger proportion of those who are crippled become dependent if not made the object of special care. Economically therefore the state is simply using ordinary business foresight if by suitable hospital care and education these patients are treated and trained so as to become partially or wholly independent and self-supporting.

It has long been recognized that special institutions are necessary both for the hospital care of crippled children and for the education of those who are defective either physically or mentally. To me it has seemed for a long time that the combination into one institution of the hospital and school for crippled children is of special importance. We have found in the Nebraska Orthopedic Hospital that considerable progress educationally may be made by these patients while actually under treatment. Moreover, a continuation of their educational training and the selection of occupations for them is probably more successfully done under the supervision of those who have administered their hospital care and who have a full appreciation of the physical and mental needs and qualifications of these patients.

The question has frequently been raised in Nebraska and elsewhere as to the propriety of having the affairs of an institution of this character administered by politicians. After eight years of experience in a state institution, during which time our appropriations have been obtained directly from the state legislature, our affairs ordered by legislative committees, and administered by state officers, it may be well to give some public expression of the manner of origin and development of this important work.

In the Nebraska legislature of 1904 a few persons (not more than six or eight), including Mr. J. H. Casebeer, who was a member of the legislature at that time, prepared and had introduced a measure providing for an appropriation of $25,000 to establish and maintain for two years an institution for the hospital care and education of the crippled and deformed. This original bill was modeled after the Minnesota law, except that the institution was placed in the custody of the board of lands and buildings instead of under the regents of the university. The Nebraska bill contemplated, however, that as in Minnesota, the matter of the appointment of officers should be in the hands of a board rather than that it should be left to the governor alone. The Orthopedic Hospital was the first institution in Nebraska for which this provision was made. Practically every member of the legislature of 1904 was duly presented with arguments in favor of inaugurating this work, and eventually the bill passed both branches of the legislature practically without opposition except that the amount of the appropriation was reduced from $25,000 to $10,000. On the presentation of the bill to the governor for his signature, however, the question was raised as to the actual necessity for such an institution. Governor Mickey expressed the belief that the number of patients actually in need of such care in Nebraska must be very small. A comparative estimate based on the number of cripples in other localities led to the conclusion that there must be as many as twelve or fifteen hundred in Nebraska. The final argument which induced Governor Mickey to sign the bill, however, was the collection by Mr. John Davis, then secretary of the board of charities, of information regarding about seventy-five cripples who were at that time objects of public care at county poor-farms or otherwise. On this showing being made, Governor Mickey signed the bill and it became a law.

The Nebraska Orthopedic Hospital was opened for the reception of patients Oct. 1, 1905, and our first official biennium closed Nov. 30, 1906. During the fourteen months 108 patients had been received at the institution. The next legislature, before whom an accurate showing was made, not only of the work already accomplished, but of the patients then in the institution and of other candidates for admission for whom no facilities had been provided, responded at once with an emergency appropriation for immediate use and with a much larger appropriation for the succeeding biennium, the total amount being in the neighborhood of $50,000. Of this amount about $20,000 was spent in remodeling our building so that it became much more satisfactory for hospital purposes.

During a period comprising nearly four years, the experiment of caring for the crippled children of

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Nebraska was actually worked out. Adequate provision was made for hospital care and for the beginning of our educational work. Much of the credit for what was accomplished during this time must be given to Mr. H. M. Eaton, chairman of the board of public lands and buildings, who had for many years prior to his election to this office been associated with the public and normal schools of this state. Mr. Eaton was, and has always been since, very enthusiastic in his support of this work. He was ably seconded in his efforts by Mr. A. Galusha and by Mr. Geo. C. Junkin, who were successively secretaries of state, Mr. Peter Mortensen and Mr. L. G. Brian, state treasurers, and Mr. Norris Brown, since United States senator from Nebraska, who was attorney general. Except for the intelligent sympathy and the enthusiasm of these men, the initial success and development of our institution would have been impossible even with the appropriations made for our work.

The legislature in 1909 by appropriating $40,000 made adequate provision for the maintenance of the institution for the next two years. No provision was made at that time, however, for any extension of our buildings, so that no considerable amount of expansion was possible. Since 1909, however, when we had an average number of patients of less than fifty, our growth has been very rapid. An appropriation of $90,000 in 1911 for the next two years and a total of $152,000 in 1913 by the legislature which has just adjourned affords some idea of the growing appreciation on the part of the members of the legislature of the work already accomplished and of its possibilities for the future.

The chairmen of the finance committees in both the senate and the house this year gave especially careful consideration to the requirements of our institution, especially Senator W. H. Reynolds, who made several personal visits to the institution and conducted an investigation into the affairs and requirements of the institution, the results of which were chiefly responsible for the appropriation of $45,000 for a new fire-proof building to be added to our equipment.

Mr. G. W. Potts, chairman of the finance committee in the house, was similarly disposed to make adequate provision for our needs and our improvements.

One of the principal matters before the legislature during this session was the passage of a law to establish and regulate the affairs of a new board of commissioners for state institutions. This new board was provided for by a constitutional amendment adopted by the people of the state about two years ago. In the present legislature legal provision was made for the organization, powers and duties of this new board. Gov. John H. Morehead has also carried out the intent of the law by the appointment of Ex-Gov. Silas A. Holcomb, Mr. Howard A. Kennedy and Mr. Henry Gerdes, so that a non-partisan board of commissioners is now at the head and in charge of all state institutions, including the Nebraska Orthopedic Hospital.

We now have at all times more than one hundred patients in the institution (this is the limit of our capacity), and with our new building under way our capacity will be about one hundred and sixty. Increasing provision has also been made for our educational work, the object being to provide training particularly along industrial lines. Most of our instruction is of the individual kind and for the past three years our school has been in operation for twelve months in the year.

The epidemic of infantile paralysis in Nebraska in 1909, which gave us nearly one thousand more crippled children, has been a determining factor in the development of our work. We estimate that there are at present in our state between two and three thousand children who could be benefited or entirely cured and their education greatly facilitated by the methods employed in the Nebraska Orthopedic Hospital.

From these figures it is easy to infer something as to the situation in other states. Minnesota, through Dr. Gillette, was doing fine work along this line before Nebraska began. New York had also already established an institution for the state care of crippled children. Massachusettes since that time has built and is operating a great educational plant for its cripples. In all of the other states, however, this field is practically undeveloped. A few states like New York, Illinois, Maryland, Pennsylvania and Maine are doing magnificent work through contributions of private philanthropists, with or without state assistance. There is great need, however, for the awakening of the public conscience with regard to these patients. We have become prodigal in our expenditures for the education and training of normal children, while those most in need of special care and training are allowed by reason of neglect to drift further into a state of dependency.

The point to which I wish to call particular attention is that in some states, perhaps in many, no special effort has been made in this direction because of the fact that those who are most interested have expressed themselves as unwilling to "mix in politics," as they express it, or to resort to political methods to secure the appropriations to establish these necessary special institutions.

The lesson we have learned in Nebraska is that our members of the legislature and our state officers have been our best friends; that they have been quick to appreciate the possibilities of this work as well as the needs of the patients and that without their sympathy and support in this, as in any other public work, success would have been absolutely impossible.

First National Bank Building.

ABSTRACT OF DISCUSSION

Dr. J. W. Cokenower, Des Moines, Iowa: I should like to add to the list of states that have made provision along this line the state of Iowa. Last winter I wrote to Dr. Arthur J. Gillette of St. Paul for a copy of the Minnesota law regarding the matter. I wanted to prepare a similar bill to present to the legislature of Iowa, and was supported by the State Board of Control. While I did not obtain so large an appropriation as I wanted, yet I obtained a small one which is in the hands of the State Board of Control, who are in touch with the cases in the state that need aid. I believe that at the next session of our legislature we shall be able to pass a bill providing for a state hospital for the care of these cases. I have been talking with some of the members present and find that there are two other states that are going to join us; so I think that state institutions for the care of crippled and deformed children have come to stay and that it will not be many years before nearly all states will have established hospitals for the care of indigent crippled and deformed children.

Dr. Emil S. Geist, Minneapolis: Minnesota is one of the first states in which this work was done, all through the efforts of Dr. Gillette. The buildings of the State Institute for Crippled and Deformed Children testify that the Minnesota legislature is good to these children. An additional grant of sixty thousand dollars has been allowed to enlarg our state institution, which, by the way, has been moved from the St. Paul City Hospital to the environs of St. Paul, where open-air methods can be pursued more successfully.

Dr. Gilbert L. Bailey, Oak Park, Ill.: It has been my good fortune to go through the school for cripples at Munich, Bavaria, which is supported partly by voluntary contributions and partly by payments made by the different towns sending crippled children to it. A town sending a crippled child to this institution pays sixty dollars a year for the four or five years required to prepare the child for the work he is most capable of doing, and in the practical German method it has been found that this sixty dollars a year is trifling compared with the cost of letting the cripple grow up in ignorance to beg or become a public charge in an almshouse. This dollars-and-cents view may also impress our politicians and the public of the advisability of establishing such schools here.

One of the troubles in the existing schools is that the child is dropped too early. In Chicago we have the public grammar schools for crippled children, who are conveyed to and from school in busses at the public expense and receive as much of a primary education as they can take, after which they are left to shift for themselves. Without a special training for the arts, crafts or business, they rarely find employment on account of their physical handicaps and, therefore, lead the lives of mendicants, or objects of state or private charity. At relatively slight cost, schools could be established, like that in Munich, which would take the cripple at the age of 14 or thereabouts and in four or five years teach him one of the arts, crafts or business methods, which would make him a self-respecting member of society, instead of a helpless dependent on charity.

Dr. John Joseph Nutt, New York: I know about the work of interesting the politicians in these hospitals. This year we obtained an appropriation of sixty thousand dollars to put up new buildings and $32,500 for maintenance.

One point that will make it a little easier for anyone trying to induce the legislature to give money for the care of crippled children is a proposition that making such provision will be economical for the state in the end. There is little hope of being able to return feeble-minded children to their homes, the chances being that they will have to stay in institutions for the rest of their lives. It is different with the crippled children. They become useful citizens. The return to the state for its investment in the hospital is absolutely demonstrable. There is a great deal done in New York City in the way of special schools for crippled children. They receive, however, only such surgical care as is afforded in the dispensary or by a visiting physician and their home life is never suitable for one suffering with tuberculous arthritis. Continuous hospital treatment until cured, with scholastic and industrial training, is what we are offering at the New York State Hospital for Crippled and Deformed Children.

Dr. John Prentiss Lord, Omaha, Neb.: Dr. Orr lives in the capital city, where the hospital is, and has taken pains to show these men the work that is being done there and to impress on them the need of it. Doctors are likely to have prejudiced ideas about legislators and their motives and the way in which they carry out their legislative functions. These men do the best they can, and it is largely a matter of determining the greatest needs in deciding the matter of the distribution of the money to the best advantage according to their way of thinking. It has been apparent that these men, on being shown this work and its necessity, have been most willing to cooperate with us. That is the secret of the whole thing. When doctors undertake to secure these appropriations, they ordinarily go to the capital with their demands and make their statements offhand, and any opposition is resented. If they would show the legislators the need of these appropriations, I think that it would be as easy to conclude the matter successfully in other states as it has been in our state through the efforts of Dr. Orr. That was all that was required to secure these increasing appropriations for this work, and I wish to acknowledge the credit that is due to Dr. Orr for the efforts he has made, largely single-handed, which have resulted in securing appropriations for the maintenance and upbuilding of the Nebraska State Orthopedic Hospital.

Dr. Albert H. Freiberg, Cincinnati: Some efforts have been made to establish a state hospital for the crippled and deformed in Ohio. I have heard nothing and seen nothing, thus far, to convince me that, as a general proposition, a state hospital is a good thing. It may be in some states, and possibly those states in which the greatest success has attended the efforts to secure it are the ones for which the plan is best adapted. My idea was to have a commission for the care of the crippled and deformed, and to have them treated in institutions already existing, instead of having each state build an institution for this particular purpose, taking children from one part of the state to another, in order that they might get the necessary treatment. I think that the question of schools is a different proposition altogether; but I doubt that it is right to have a school situated in one part of the state, and to take children to it from other parts of the state to be cared for.

Dr. Lord has not succeeded in convincing me of the ease with which these things can be obtained politically, because we have had evidence of rather strenuous attempts on the part of the doctors there to convince their legislators that orthopedic cases should be treated by men who know something about orthopedics. Indeed, they sought some evidence in regard to this necessity from us. My feeling is that, in the United States, as in Europe, there are men who busy themselves especially with these problems, and that it should be the duty of the state to take the children to these men; that a state commission should exist, to whom these persons should be brought, and that the commission should see that the children are placed where they can obtain proper treatment, without requiring them to be taken several hundred miles from their parents while they receive a long course of treatment and schooling, adapted to their particular crippled condition.

Dr. H. Winnett Orr, Lincoln, Neb.: Dr. Freiberg has put his finger on the sensitive spot, but I consider that his criticism is just and fair. My contention is, however, that a physician who wants to accomplish things along these lines must, on that account, familiarize himself with the methods that politicians use and adopt their methods, so far as is proper and right.

In regard to the matter of institutionalizing these children, I would say that this is a point raised by many members of the medical profession and others. I am in sympathy with this argument in dealing with normal children; but there are few cripples, especially those who have active disease also, who are not better off in institutions than they would be at home with their parents. The parents and the family physicians rarely do justice to these children; and a special institution, with a special staff and organization, and especially, special educational opportunities and facilities, is absolutely essential if we are to give these children a chance.

Dr. A. J. Gillette, St. Paul, Minn.: This is a matter that ought to come before every single state in the Union in which there is not a hospital for orthopedic work in which the patients may be left as long as necessary. Another point is that it is a great deal easier to establish one of these institutions in a state than is supposed. I do not believe that there would be trouble in going to any legislature and getting some men interested in it, by teaching them what you mean by orthopedics and what you purpose to do. I should like to say that it would be all right to state in introducing a bill of this kind that the doctor is to receive no salary. It is right for him to have a salary later; but if you ask for a salary at first, you will have trouble in securing the passage of the bill. A good plan would be to limit the time during which the physician shall serve without a salary to the first five years.

Dr. H. Winnett Orr, Lincoln, Neb.: I should like to have Dr. Gillette discuss a question which Dr. Freiberg has raised by saying that he thought that it would be better to have the crippled children under the care of a commission in local hospitals, wherever they happened to be, than to have them placed in a special institution.

Dr. Arthur J. Gillette, St. Paul, Minn.: Judging from the conditions in Wisconsin, where I had something to do with getting an appropriation since I had a personal friend in that legislature, I should say that the scheme for the appointment of such a commission would be a failure. In that state, such an arrangement is almost an absolute failure. I think that these children should be placed togther in a hospital, to be taken care of by persons who are educated in caring for cases of this kind.

THE ORTHOPEDIC SURGERY OF FIFTY YEARS AGO WITH SOME REMINISCENCES AND CONCLUSIONS *

NEWTON M. SHAFFER, M.D.
NEW YORK

The present occasion is not only one which calls for congratulation and felicitation to those of us who have labored for years for the advancement of orthopedic surgery, but it may also be regarded as being, in some important respects, the semicentennial of the birth of this important branch of surgical science. It seems, therefore, a proper occasion to refer to the stirring events of fifty years ago which marked the strenuous activities of such men as Davis, Taylor, Sayre and Knight, whose genius and abilities have made possible the development of the orthopedic surgery of to-day, and whose contributions to surgery have, among other important events, resulted in the formation of this important Section of the American Medical Association.

Fifty years ago, May 1, 1863, the New York Hospital for the Relief of the Ruptured and Crippled, opened its doors for the treatment of patients at 97 Second Avenue, under the administration of Dr. James Knight, its founder. It so happened that I was present on that occasion—a humble, but paid officer of the institution, with stated dispensary and hospital duties—and was also the student of Dr. Knight. The opening of this hospital was a notable event in the history of the treatment of the deforming diseases of childhood. It has been followed by many other institutions of a similar nature during the past fifty years, but this was the first duly incorporated institution in this country devoted to this special object.

The establishment of this hospital, especially when coupled with the activities of Taylor and Sayre, made an epoch in the medical history of this country, and brought about a revolution in the treatment of deformities. The year 1863 was particularly prolific in events. Davis had given to the profession his traction apparatus for hip-joint disease, and other valuable appliances, and had formulated his views and principles. Taylor had introduced his ingenious and effectual "spinal assistant" and many other valuable and original devices, and had amplified, in many essential respects, the traction apparatus of Davis, giving us the first available portative traction hip-splint. Sayre brought his great abilities into play and promulgated several important and useful methods, including apparatus for club-foot, and the knee and ankle traction-splints which bear his name. These two men, both born leaders, earnest, energetic, and progressive, led the way. The discussions which attended and followed the development of these new ideas and methods were enlivened by spirited utterances and lively debates. But it all brought about a condition of affairs in which a much neglected branch of surgical endeavor received strenuous attention, and the original work of these pioneers, even at that time, was rewarded by eminent notice both at home and abroad.

The conservatism of Dr. Knight in 1863 and later in refusing to adopt these modern methods in the Hospital for the Ruptured and Crippled led, in 1866, to the establishment by Theodore Roosevelt, Senior, and Howard Potter, under Dr. Charles Fayette Taylor and Dr. John T. Metcalfe, of the New York Orthopedic Dispensary, which was afterwards enlarged and made a fully equipped hospital. Later on, in 1872, the methods pursued in the Orthopedic Hospital were, through the same influences, introduced into St. Luke's Hospital, and I was at that time appointed as orthopedic surgeon to this institution, the first appointment of its kind. Sayre, as professor of orthopedic surgery in Bellevue Hospital, was doing a yeoman's work in the early sixties and his clinics were the Mecca of many who were interested in these newly developed methods. These, and other more or less important events clustered about, and followed, the great events of fifty years or so ago, making this period the first stage of an evolution, the present stage of which would surprise these eminent founders if they could witness the great developments which have followed their teachings and efforts of half a century ago.

I spent five and one-half years under Dr. Knight in the Hospital for the Ruptured and Crippled—from May 1, 1863, to Nov. 1, 1868, being the first assistant resident-surgeon of the institution. I was an interested observer of the events which marked the beginning of my professional career, which commenced when I was but 17 years old. Faithful to my preceptor—a partisan, in effect—I, as a boy, looked with distrust on the new methods. But I experienced a shock of surprise and joy when in April, 1871, I was asked to become an assistant surgeon to the New York Orthopedic Dispensary, and saw the methods there used. Taylor's methods of diagnosis, his alert adaptation of mechanical means to pathologic ends, his great originality in devising apparatus for all kinds of deforming diseases and conditions; his quick appreciation and interpretation of symptoms, all this was a revelation. I became an active follower of Taylor and entered into the work before me with all the zeal I possessed, and soon acquired, or one might almost say inherited, some of the combative qualities which marked the men and their discussions of those early days.

At that time operative surgical work was not ignored, but, in the earnest interest of the moment, was relegated to the background. Sayre was as prominent as an operator as he was in advocacy of Davis' methods, and he rather disliked, I think, to be called an orthopedic surgeon. Those who followed Taylor's teaching were more interested in the development of the mechanical field, than in the operative. Taylor's private hospital and the Orthopedic Dispensary were perfected shops. The assistant surgeons did their own work, from measuring the patients for apparatus, making accurate drawings if necessary, to and including its final adjustment. Some of us would go into the shop and make with our own hands some of the simpler forms of apparatus; and a handy work-bench with tools, in the dispensary treatment room, was used by the assistants to make simple repairs and alterations. There were no trained nurses, nor any women attendants, except a sewing-woman, whose duty consisted in keeping in repair any worn-out leather work, and in sewing on bandages. The assistant surgeons were encouraged to develop new mechanical devices. The instrument makers were regarded as phar-

---

* Chairman's address before the section on Orthopedic Surgery of the American Medical Association at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

macists whose sole duty it was to prepare the mechanical prescription, as furnished by the surgeon. The instrument maker never came in contact with the patient, except, perhaps, when, with the apparatus applied to the patient, a verbal order was given him to make alterations which required shop facilities to produce. The adjustment of the spinal braces was all done by the assistant surgical staff, and the adhesive plasters for traction of the hip or knee were applied by them, as were the necessary bandages. The assistant surgeon was held directly responsible for the care of the patients assigned to him. It was interesting, thorough and arduous work. It was well done, and was orthopedic surgery distinctly, as compared with the work of the general surgeon. This was before the antiseptic method of Lister was introduced, but such operations as were indicated—all supplementing the mechanical work—were performed in the dispensary building, or at the patient's home, the after treatment being carried out at the residence of the patient. Several men—since eminent in this branch of surgery—became students of Taylor or Sayre, or both. These men learned orthopedic surgery. It was never a question as to whether a man was an operative surgeon. It was taken for granted that he could, and would, operate if necessary. He was there to learn new methods in diagnosis and treatment, and a year under Taylor and Sayre was a liberal education.

Later, in 1876, when Dr. Taylor resigned from the Orthopedic Hospital and I succeeded him as surgeon-in-chief, this hospital became a similar school of orthopedic surgery. There are some who have since become eminent orthopedic surgeons who honored me with their presence (a few are present now), who became my students and to whom I gave instruction. Without being invidious I may mention some of them—Ridlon, Gillette, Lovett, Myers, Packard, Fitzhugh, Young and Schapps; also the late Sidney Roberts and the late Samuel Ketch.

And there is another of my assistants and pupils, who shall be nameless, who yet deserves a passing notice.

I had been for nearly twenty-eight years an active officer of the New York Orthopedic Dispensary and Hospital, and for twenty-two years its surgeon-in-chief, when a crisis arose in hospital management involving the fundamental principles of control by the senior medical officer. I was then blessed and favored by an assistant who employed his peculiar talents in, at least, assisting in bringing about a condition of affairs which could only result in the sacrifice of this essential, indeed, vital principle, or the resignation of the surgeon-in-chief. The latter alternative was successfully accomplished.

Others of my younger associates and assistants who honored me with their confidence and were my pupils have drifted into general surgery since leaving the hospital, and being general surgeons have made orthopedic work a sort of kite-tail to their general work. All of these men, including those I have named, had a training which cannot be duplicated to-day, in the most important and essential part of orthopedic surgery, that is, the art and science of prescribing, applying and adjusting apparatus. It might be well if the future student of orthopedic surgery should spend at least a year in some properly equipped shop, just as the various colleges and universities demand of students in their engineering department a term of laboratory work in the course leading to the degree of C.E. The orthopedic surgeon should know more than his instrument maker. He should be able to devise the apparatus needed. He should be competent to direct its manufacture. He should know how to alter and adjust it to the conditions for which it was devised—in short, he should be able absolutely to control the situation. How many men practicing orthopedic surgery to-day fulfil these conditions? Not many!

And why? First of all comes the lack of facilities for proper preliminary education. Then again I am afraid that it is considered by some of our best-known men that mechanical work is *infra dig.* They are willing that the instrument maker should measure for, and after manufacturing it, adjust the apparatus to the patient. Another reason is that since the advent of aseptic surgery, operative measures have come to the front, and mechanical means have been relegated to the background. An important reason lies in the ever ready, often useful, but generally baneful, plaster-of-Paris bandage. I think it safe to say that 90 per cent. of the non-operative deformities of childhood can be more scientifically treated and more intelligently handled with properly constructed apparatus, than by the use of the gypsum bandage—and, I am sure, ultimately with much better results.

A cynic might say, in the present status of affairs—for an orthopedic surgeon must necessarily be an operative surgeon—that all that is needed to transform a general surgeon into an orthopedic surgeon is for the former to become an adept in the use of the plaster-of-Paris bandage. That this criticism can be made with some degree of justice, so far, at least, as the operative treatment of deformities is concerned, emphasizes the weak point of the present-day orthopedic surgery; that is, the lack among those practicing it of a thorough training in the thing which has been the most important formative influence in orthopedic surgery, which distinguishes it from general surgery, and which, if orthopedic surgery is to exist as a distinct branch in the future, must be cultivated and progressively developed—the intelligent and scientific use of apparatus. While this is all so—and this deficiency, which all must deplore, exists—nevertheless in the lines of the study, and investigation of the causes of the deforming diseases of childhood; in the way of devising operative and exceptionally mechanical measures for their relief; in the cause of the advancement of public philanthropic measures for the amelioration of this large and interesting class of sufferers, the orthopedic surgeon of America stands out prominently to-day in the scientific and humanitarian worlds.

Fraudulent Advertising by Physicians.—The secretary of the state board has received a lying advertisement from a paper from the southern part of the state, in which the advertising doctor promises, among other things, to cure appendicitis without the knife. Unfortunately this doctor is a licensed physician. The state board can do nothing with such cases unless it can be shown that the advertiser is guilty of "dishonorable conduct." While the promise to cure when one knows he cannot cure by the promised means is, in the physician's view, always dishonorable, this would scarcely be good evidence before a jury; and until such evidence can be secured the board can do nothing. The local prosecuting attorney should be consulted in all doubtful cases, and sometimes it is possible to convict on a charge of obtaining money under false pretenses. All quacks live on false advertising. Try moral and other suasion on the editors. Not all of them are pachyderms. Get the ads. out of the papers and the prosperity of the quack ceases.—Editorial *West Virginia Medical Journal.*

BACTERIAL INVASION OF BLOOD AND CEREBROSPINAL FLUID BY WAY OF LYMPH-NODES

FINDINGS IN LYMPH-NODES DRAINING THE PELVIS *

E. E. SOUTHARD, M.D.
Pathologist to the State Board of Insanity; Director of the Psychopathic Department of Boston State Hospital; Bullard Professor of Neuropathology, Harvard Medical School

AND

MYRTELLE M. CANAVAN, M.D.
Pathologist to the Boston State Hospital

BOSTON

The present communication is the fourth of a series dealing with a possible path of meningeal infection. The previous (or third) and second communications dealt with the bacterial invasion of the blood and cerebrospinal fluid in the light of findings, respectively, in the bronchial (fifty cases) and the retroperitoneal (thirty cases) lymph-nodes, and in the mesenteric (fifty cases) lymph-nodes. The second (or mesenteric lymph-nodes) communication developed an idea based on a previous paper by Gay and Southard[1] on the general significance of bacteria cultivated from the cadaver.

Our efforts have been directed at throwing light (so far as routine necropsy cultures might) on the curious fact observed by Gay and Southard that, whereas 41 per cent. of the bloods remained sterile with the methods used, on the other hand only 28 per cent. of the cerebrospinal fluids remained sterile.

Concerning the general problem we shall say no more than that the blood percentages obtained by Gay and Southard with insane hospital material compare well with those of other workers (mentioned in previous communications) with general hospital material, that our work has not necessarily anything to do with the general controversy between the "intravitalists" and the "postmortalists" as to the meaning of bacteria grown from the cadaver, and that there are no available data from other workers concerning our high positive percentages in the cerebrospinal fluid. The cerebrospinal fluid has been shown by Gay, and independently by McKenzie and Martin, normally to contain no bacteriolytic substances, whereas the blood is well known to contain such both in life and for some time after death.[1]

We were led to the obvious idea that bacteria from whatever source—infected lesion or some surface drained by lymph-nodes—might enter the blood, infect the meninges, die out in the blood, and persist in the cerebrospinal fluid. (Of course, it is also conceivable that organisms may in some way enter the cerebrospinal sheath from lymph-vessels without passing through the blood: the solution of the latter problem can hardly be by such statistical work as we now report.)

In point of fact, our cultivations from three loci (mesenteric lymph-node, blood and cerebrospinal fluid) gave the expected result that the most frequent positives in two out of three loci occurred precisely in the lymph-node-fluid combination. Fortunately for certain purposes, though unfortunately for others, our mesenteric lymph-node comparative cultivations were made during a dysentery epidemic, which so enriched the flora with secondary invaders that actually 55 per cent. of the cases gave positive results (with one or more organisms) from all three chosen loci[2] (mesenteric lymph-node, blood and cerebrospinal fluid).

We went on to study in similar comparative fashion the organisms cultivable from bronchial lymph-nodes, blood and cerebrospinal fluid.[3] The fluid persisted in leading both blood and lymph-nodes in percentages of positive cultivations. But, although the bronchial lymph-nodes led the blood in positives, yet the combination of positives in lymph-node and fluid was decidedly uncommon in this bronchial node investigation. Also only 35 per cent. of the cases yielded positives in all three loci (bronchial lymph-node, blood and cerebrospinal fluid). Accordingly we suspected that the bronchial lymph-nodes had somehow less to do with invasion of the cerebrospinal sheath than the mesenteric lymph-nodes.

We then resorted to cultivations from retroperitoneal lymph-nodes[3] against the other loci. In the latter small series (thirty cases) we actually found the lymph-nodes leading the cerebrospinal fluid as well as the blood in point of positives. Moreover, we found the retroperitoneal series resembling the mesenteric series in the preference among binary positive combinations displayed by the lymph-node-fluid combination.

The mesenteric lymph-node results, as hinted before, may have been essentially modified by the epidemic conditions in the summer of 1909 at the Danvers hospital. We felt that an investigation narrowed to lymph-nodes draining the pelvis would offer us special correlations with particular lesions and germ-bearing surfaces. Instead of general hospital conditions tending to swell and infect the mesenteric lymph-nodes, we should study special conditions tending to produce localized invasions.

Here perhaps it may be observed that we are taking sides rather with the intravitalist than with the postmortalist in respect to these invasions of various parts of the body by bacteria.

The results in our twenty-eight pelvic lymph-node cases are given in Table 1.

TABLE 1.—PELVIC LYMPH-NODE SERIES

		Percentages		
Hrs. post mortem	No of Cases	Heart's Blood	Cereb. Fl.	P. L.-N.
0—2	1	0	0	100
2—4	0	0	0	0
4—6	2	100	50	50
6—12	7	85	42.5	85
12—24	13	61.5	76.9	69
24—48	2	100	50	100
48+	3	33	66	66

Fusing results in pelvic with those in retroperitoneal lymph-nodes the results are as given in Table 2.

TABLE 2.—PELVIC AND RETROPERITONEAL LYMPH-NODES

		Percentages		
Hrs. post mortem	No. of cases	Heart's Blood	Cereb. Fl.	L.-N.
0— 2	2	0	0	100
2— 4	0	0	0	0
4— 6	4	75	75	75
6—12	14	93	71	93
12—24	22	68	86	77
24—48	4	75	50	100
48+	5	40	60	60

---

* From the Laboratory of the Danvers State Hospital, being Danvers State Hospital Contributions No. 42, 1913, and a sequel to the same Contributions Nos. 18 and 8. This work has been aided by the Investigation Fund of the Massachusetts Board of Insanity and the Underhill Fund for Neurological Investigation, Harvard Medical School.

*Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

[1] Gay and Southard: The Significance of Bacteria Cultivated from the Human Cadaver: a Study of 100 Cases of Mental Disease, with Blood and Cerebrospinal Fluid Cultures and Clinical and Histologic Correlations, Centralbl. f. Bakteriol., 1910, lv.

[2] Southard and Canavan: Bacterial Invasion of the Blood and the Cerebrospinal Fluid by Way of Mesenteric Lymph-Nodes: a Study of Fifty Cases of Mental Disease, Danvers State Hospital Laboratory Papers, 1910, No. 8, Boston Med. and Surg. Jour., 1910, clxiii.

[3] Southard and Canavan: Second Note on Bacterial Invasion of the Blood an [illegible] al Fluid by Way of Lymph-Nodes: Findings in Br [illegible] itoneal Lymph-Nodes, Danvers State Hospital [illegible] 3, 1912, Boston Med. and Surg. Jour., 1912, clxvii.

There are perhaps again no significant differences in the flora of these loci as cultivated post mortem. If the invasions are post mortem, the chances favor the hypothesis that the invasions occur early (say in the first few hours) after death.

The kinds of bacteria cultivated are shown in Table 3. As in former work, Chester's "Determinative Bacteriology," 1901, has been largely followed.

TABLE 3.—TWENTY-EIGHT NECROPSIED CASES

	Heart's Blood	Cereb. Sp. Fl.	P. L.-N.
Cocci:			
Streptococci-Micrococci	1	..	..
Albus	..	1	..
Others non-pigmented	3	5	1
Citreus	1	..	..
Others pigmented	2	..	1
Unidentified cocci	..	1	1
Bacteria:			
Hemorrhagic septicemia	1	2	1
Sanguinarium	..	..	1
Anthrax group:			
Anthracoides	3	4	2
Rugosum	..	..	..
Truncatum	1	3	1
Subtiliforme	1	1	..
Varicosum	2	..	..
Fermentationis	..	..	1
Bacilli:			
Coli group	2	..	4
Formosus group	1	..	1
Citreus	..	1	..
Pammelii	..	..	1
Bassonis	..	1	..
Antenniformis	..	..	1
Strassmanni	1	..	..
Sulphureus	1	..	..
Lesagei	..	..	1

Growths of some sort were obtained from the plates as in Table 4.

TABLE 4.—SOURCE OF GROWTHS

	Cases	Per Cent.
Heart's blood	19 in 28	68
Cerebrospinal fluid	18 in 25	72
Pelvic lymph-node	21 in 28	75
Growths from no region		2

Growths from one region and not from the other two:

	Cases
Heart's blood	0
Cerebrospinal fluid	2
Pelvic lymph-node	2

Growths from two regions and not from the third:

	Cases
Heart's blood and cerebrospinal fluid	3
Heart's blood and pelvic lymph-node	3
Cerebrospinal fluid and pelvic lymph-node	3
Growths from all three regions	10

It is interesting to note that these pelvic lymph-nodes, like the higher group of retroperitoneal lymph-nodes studied in the previous communication, are richer in positive cultivations than the cerebrospinal fluid. It is accordingly not unlikely that, as a general rule, the pelvic and retroperitoneal lymph-nodes are more likely to harbor micro-organisms than the mesenteric or the bronchial lymph-nodes.

Like the groups previously studied, the pelvic nodes persist in leading the heart's blood in percentage of positive cultures. This, we assume, is but natural not only because the lymph-nodes are nearer the usual sources of bacteria, but also because in the fluid blood organisms which reach it are readily killed.

No further example (like one in the retroperitoneal series, 1414) of a positive blood with other loci negative was found in the pelvic series.

Since all the binary combinations are equally productive of positive cultivations, no conclusion can be drawn as to preferences for the different loci.

Three cases yielded the same organism in all three loci:

CASE 1.—14679, Path. 1398, man aged 46, general paresis, with purulent prostatitis, showed *Bacterium anthracoides* in pure culture in pelvic (inguinal), mesenteric, bronchial lymph-nodes, in heart's blood and in cerebrospinal fluid.

CASE 2.—15255, Path. 1404, man aged 40, general paresis, with pulmonary tuberculosis, hypertrophied prostate and injected bladder, showed *Bacterium gallinarum* in bladder, pelvic lymph-node, blood and cerebrospinal fluid; *Bacillus formosus* in lymph-node along aorta; *Bacterium anthracoides* and unidentified cocci in pus from right ear, and unidentified cocci in other pelvic and in retroperitoneal lymph-nodes sixteen hours post mortem.

CASE 3.—14779, Path. 1413, male, aged 16, dementia praecox, with injection of prostate and bladder and death from typhoid fever and peritonitis, showed in urethra, pelvic, retroperitoneal and aortic lymph-nodes, heart, cerebrospinal fluid, *Bacterium sanguinarium*, in peritoneal fluid *Bacterium pallescens*, two hours post mortem.

The foregoing three and six other cases showed the same organism in pelvic lymph-nodes and in cerebrospinal fluid (nine cases).

CASE 4.—14656, 1385, woman aged 46, Huntington's chorea, *Bacterium anthracoides*, nine hours post mortem.

CASE 5.—15195, 1396, woman aged 51, organic dementia, cocci, sixteen hours post mortem (cocci also in decubitus).

CASE 6.—15495, 1397, woman aged 59, involution melancholia, *Bacterium anthracoides*, thirty-nine hours post mortem.

CASE 7.—15497, 1402, man aged 36, status epilepticus, *Micrococcus lactis*, twelve hours post mortem.

CASE 8.—12367, 1409, man aged 57, manic-depressive, *Bacterium truncatum*. eighteen hours post mortem.

CASE 9.—15577, 1416, woman aged 68, organic dementia, *Bacterium citreum*, nine hours post morten.

These findings raise the hypothesis of invasions (whether antemortem or postmortem is here of no account) of two loci often supposed to be closed from one another: a ready hypothesis might be that in the first three cases listed the blood served to spread the bacteria either mechanically or as a growth medium, and that in the last six, the blood, if ever invaded, had killed out its contained bacteria.

In connection with pelvic nodes, it becomes of interest to inquire whether or not acute or chronic pelvic lesions bear any relation to the bacteria cultivated from the nodes. As is not infrequent in insane hospital material, pelvic lesions were numerous. There were in fact but five cases, in which acute or chronic pelvic lesions can be safely excluded according to the necropsy protocols; these five cases yielded sterile pelvic lymph-nodes (1387, 1388, 1406, 1410, 1414), although other lymph-nodes and loci yielded various cultivations.

Of the twenty remaining cases, all but two had pelvic lesions of an acute appearance (four associated with chronic lesions); the remainder (1397 and 1415) have only chronic lesions. Only five of these twenty cases of pelvic lesion failed to show bacteria in pelvic lymph-nodes (1393, prostatic cysts, psoas abscess; 1395, acute cystitis; 1401, rectal injection (lesion?); 1407, acute cystitis (gastric carcinoma); and 1417, injection of bladder. As can be observed, at least three of these cases are to no marked degree diseased as to pelvis, if at all.

As to the general capacity of these loci to receive and care for the larger groups of bacteria (Chester following Migula), we find:

Cocci: in lymph-node 5, cerebrospinal fluid 7, heart's blood 8.

Bacilli: in lymph-node 14, cerebrospinal fluid 10, heart's blood 11.

Bacteria: in lymph-node 4, cerebrospinal fluid 0, heart's blood 3.

SUMMARY AND REMARKS

1. This continuation of our former work shows that the cerebrospinal fluid (72 per cent.) still leads the

heart's blood (68 *per cent.*) in percentage of positive cultures (routine aerobic methods, post-mortem material).

2. Pelvic lymph-nodes (like mesenteric nodes in our former work) lead both blood and cerebrospinal fluid (75 per cent.).

3. This is possibly due to the great percentage of pelvic lesions in the present series (twenty out of twenty-five cases; fifteen of the twenty showing organisms in pelvic lymph-nodes).

4. It is still uncertain whether these findings indicate ante-mortem or post-mortem invasions. Of course an acute or chronic lesion may conceivably help the penetration of organisms from without.

5. If (as seems likely) the invasions are intravital or agonal, then it would appear that the pelvic lymph-nodes are *accustomed to harboring many bacteria* (compare the mesenteric lymph-nodes in an epidemic of dysentery[2]).

6. Whether this habit of receiving more organisms than other nodes induces any superiority on the part of these nodes in respect to their power of digestion, we cannot say. If so, a rationale for Fowler's drainage position (upper part of abdomen maintained higher than lower part), might be imagined. Such a rationale would be superior to saying that the pelvic peritoneum is a better filter than others or is differently constructed from peritoneum elsewhere.

7. The pelvis, often subject to acute and chronic disease in the insane, appears to supply its lymph-nodes with very numerous bacteria (both motile and non-motile and of many groups). Some of these are saprophytes, some doubtless pathogens: they are often found in the cerebrospinal fluid post mortem, even when absent (destroyed?) in the blood. The pelvis compares, under the random conditions studied, with the intestinal tract in its habit of supplying bacteria to regionary lymph-nodes; and perhaps the pelvis surpasses the intestinal tract, since the latter's lymph-nodes happened to be studied during an epidemic of intestinal disease which provided an excess of secondary invaders.

8. The hypothesis of a route of meningeal invasion by way of the blood receives added support from this work, although the possibility of more direct invasion must be considered.

ABSTRACT OF DISCUSSION

Dr. H. E. Robertson, Minneapolis: For many years the bacteriology of dead bodies has been the subject of a great deal of discussion, and considerable contempt has been thrown on attempts to isolate pathologic micro-organisms from the body after death and draw any conclusion in regard to their influence on the body before death. There are still some questions which we should like to have Dr. Southard settle for us. Are all kinds of bacteria continually entering the blood from the intestinal tract and continually being taken care of by the protective influences of the blood? This question might perhaps apply not only to the blood, but also to the lymph and the cerebrospinal fluid. What is meant by the agonal invasions of bacteria into the blood and the lymph-nodes? Have we any particular reason to believe that there is any more invasion into the blood and lymph-nodes during abnormal processes than continually during the normal life? Have there been any actual experiments to show whether or not bacteria do pass out into the fluid of the peritoneum, *into the* blood-vessels or into the lymph-streams after death?

Dr. Henry Albert, Iowa City, Iowa: Were examinations of the blood and cerebrospinal fluid made before death in those cases in which they were made at *post-mortem*? In what proportion of the cases was the dysentery bacillus found in the mesenteric lymph-nodes?

Dr. E. E. Southard, Boston: I had thought from the early work that organisms were continually going through from the intestines into the blood and being continually killed there, and I was somewhat impressed with the work of McDonald concerning the probable infective condition of normal organs during life in most cases. When I found, however, how few cultivable organisms there were in my Boston series I began to wonder whether this was the case. Someone ought to endeavor to make a complete bacteriologic study of the dead body. I do not suppose that anyone has ever done that. Until that is done I do not see how the question of the continual supply of the blood with the bacteria can be settled, but I am of the opinion that it is a continual supply, perhaps from the lymph-nodes, but perhaps more often from the pelvis. Agonal invasions should be less common than non-agonal invasions on account of the well-known immobility of persons who are dead. Experimental work in this department should be done on various parts of the body. In fact, I have been tentatively doing some work in this direction in the pelvis, which I hope I may be able to bring evidence of at a future meeting. An elaborate report of a dysentery epidemic was published in the *Boston Medical and Surgical Journal* in 1910. A rather small number of dysentery bacilli were cultivated in that series. In a certain number of cases comparisons of the blood have been made, but the number is not large enough to warrant any statistical conclusions.

REPORT OF THE COMMITTEE ON THE TREATMENT OF PUERPERAL FEVER[*]

BARTON COOKE HIRST, M.D.
PHILADELPHIA
ROBERT L. DICKINSON, M.D.
BROOKLYN
JOSEPH B. DeLEE, M.D.
CHICAGO

At the last meeting of the American Medical Association held at Atlantic City, Dr. T. J. Watkins read a paper on the treatment of puerperal infection, advocating a non-interfering, expectant policy. In the discussion that followed, two widely divergent opinions were voiced. Some would immediately attack the uterus and empty it of its contents; others would wait for Nature to expel ovular remnants.

In proposing that a committee be appointed to investigate the subject, three purposes were kept in mind: (1) to obtain the opinions of authorities and of the profession at large, thus to learn what is the general teaching and practice of to-day; (2) to call general attention to the importance of the subject; (3) if possible, to formulate a course of procedure which would be generally applicable to the treatment of sepsis with retained ovular material.

It was decided to send a letter of inquiry to the profession. The questions reproduced herewith were sent out as follows: 400 letters to professors and assistant professors of obstetrics and gynecology in the United States and Canada; 200 to professors and assistant professors of surgery in the United States; 60 to professors of obstetrics and gynecology abroad—to England, Ireland, Scotland, Germany, France, the Netherlands, Russia and Italy. In addition, the first three questions were published in The Journal.

In all, 302 replies were received, of which 197 came from obstetricians and gynecologists, 53 from surgeons,

---

[*] Read in the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

38 from foreign gynecologists and 14 from general practitioners who saw the questions in THE JOURNAL.

Following is a detailed classification of the replies. In advance it must be stated that although the questions were prepared with great care and made as direct as possible, so as to elicit an opinion that could be readily classified, still a certain amount of freedom was expected in answering, and we did not anticipate dogmatic unqualified statements. The results, on the whole, were good, since it was possible in nearly all instances to judge from the general tone of the answers what was the individual practice of the writer.

Question 1.—"A primipara with septic abortion at three months, fever two days, hemorrhage negligible, the ovum intact, retained. What would you do?"

This question was intended to cover that large class of cases in which the criminal abortionist has attempted to induce abortion in one way or the other and has succeeded only in infecting the uterus and its contents. by twelve of the writers this question was misunderstood, they holding that the ovum had been expelled intact. In later blanks issued, the word "retained" was added. It is probable that the words *in situ* would have been better, although only 4 per cent. did not grasp the exact meaning. We divided the replies into three groups: First, those who would clean out the uterus; second, those who would treat the uterus expectantly, only interfering when hemorrhage or other condition demanded: and third, those who would use mild disinfectant and expectant treatment, such as uterine douches and gauze packing.

TABLE 1—ANSWERS TO QUESTION 1

	Clean Out	Expectant	Mild Disinfectant and Expectant
189 Obstetricians and gynecologists ..	139	32	18
51 Surgeons	42	4	5
37 European authorities	32	0	5
14 General practitioners	11	0	3

Question 2.—"A primipara with septic abortion at three months, fever two days. hemorrhage negligible, the fetus expelled, placenta retained. What would you do?"

The same division of the replies was made.

TABLE 2.—ANSWERS TO QUESTION 2

	Clean Out	Expectant	Mild Disinfectant and Expectant
197 Obstetricians and gynecologists..	156	33	8
49 Surgeons	41	3	5
38 European authorities	33	2	3
13 General practitioners	10	0	3

Question 3.—"A primipara, fourth day after full-term delivery, positive evidence of uterine infection, no hemorrhage, retention of ovular remnants suspected. What would you do?"

This question was very carefully drawn, because it was the object of the committee to discover on how much, or how little, provocation the uterus was invaded after labor at term. Furthermore, in actual practice, it is very difficult to be certain that there are ovular remnants in the uterus.

TABLE 3.—ANSWERS TO QUESTION 3

	Clean Out	Expectant	Mild Disinfectant and Expectant
183 Obstetricians and gynecologists ..	136	34	13
52 Surgeons	36	4	12
38 European authorities	27	4	7
13 General practitioners	8	0	5

It will be noted that in general the treatment advocated for these three conditions is about the same by the individual operator; i. e., it is clean out or not in all three cases. The totals do not always tally because some men did not answer all the questions.

Question 4.—"If you (a) believe in active interference, (b) when do you do it?"

The committee wished further to know how urgent interference in septic cases was considered, and therefore propounded Question 4.

TABLE 4.—ANSWERS TO QUESTION 4

(A) ACTIVE INTERFERENCE

	At Once	Within 24 Hours	Later
154 Obstetricians and gynecologists..	128	8	18
41 Surgeons	32	0	9
33 European authorities	24	7	0
9 General practitioners	6	0	3

(B) TIME OF INTERFERENCE

	Obstetricians and Gynecologists.	Surgeons	European Authorities	General Practitioners
Curet—dull	70	21	9	6
Curet—sharp	19	5	0	0
Curet—not named	24	7	10	0
Finger	127	33	34	0
Placenta forceps	96	22	14	0
Tampon	39	18	11	0

Very few operators specified one or the other method as an exclusive one. Nearly all would use the finger as a method of preference, the others as aids, or where it was impossible to insert the finger. A few specified that the finger was more dangerous than the curet.

Question 5.—"What do you do when hemorrhage complicates sepsis?"

The idea of this question was to learn how many men became more active in the treatment when hemorrhage was added to the indications for interference.

TABLE 5.—ANSWERS TO QUESTION 5

	Tampon	Douche	Curet	Finger	Medicines
Obstetricians and gynecologists	92	20	72	42	31
Surgeons	29	6	16	16	5
European authorities .	15	4	7	8	3

From this maze of answers it was possible to elicit these facts: The majority of operators do not fear to pack a septic uterus. The majority believe in emptying the uterus fully to stop hemorrhage. Few use medicines as adjuvants and still fewer use them alone.

Question 6.—"If you believe in trusting to Nature when ovular remnants are retained, how long do you wait before operating?"

Those practitioners who trust Nature to throw off the retained material usually believe that it is more dangerous to interfere than to wait, and that active treatment of the uterus spreads the infection by breaking down Nature's barriers. We already learned what is done when hemorrhage complicates sepsis (Question 5)—we wished further to learn how long it was considered wise or safe to wait on Nature—how long a time was considered sufficient for Nature to put up an efficient barrier against the invading finger or curet. Unfortunately, these points could not be elicited from the answers.

TABLE 6.—ANSWERS TO QUESTION 6

	Wait 24 Hours	Wait 24 to 48 Hours	Wait Longer than 48 Hours
32 Obstetricians and gynecologists...	4	7	21
4 Surgeons	0	1	3
2 European authorities	0	1	1

It seems, of those who were willing to wait, the majority felt safe in waiting two days or longer. One author stated that he waits two or three weeks.

Question 7.—"Do you try to distinguish between sapremic and bacteriemic states before operating? How do you do it?"

Not long since it was believed that if a hemolytic streptococcus were found in the uterus, local interference was very dangerous, since it would almost surely be followed by a bacteriemia, but that if only saprophytic organisms were found in the uterus local interference was safe. We wished to learn how many still believed it is possible to discover whether the germs in the uterus possessed invasive qualities or not, or that they were able in any way to differentiate a purely local infection with absorption of toxins (generally known as sapremia) from a general infection (generally known as bacteriemia).

TABLE 7.—ANSWERS TO QUESTION 7

	Try to Distinguish	Do Not Try to Distinguish	Depend on Uterine Cultures	Depend on Vaginal Cultures	Depend on Blood Cultures	Depend on Clinical Symptoms	Depend on Exploration
Obstetricians and gynecologists	80	79	40	21	28	42	3
Surgeons	16	27	11	0	4	11	0
European authorities	12	22	7	1	4	9	0

Only half of the writers believe a distinction practical. It must be admitted that European accoucheurs, in general, have better facilities for such differentiation than we do, yet with them twenty-two of thirty-four believe it is impractical.

Question 8.—"Do you make any distinction between the treatment of sepsis after abortion and that after full-term delivery?"

We might have gathered this information from a careful study of the answers to Questions 1, 2 and 3, but it was thought best to get the direct replies.

TABLE 8.—ANSWERS TO QUESTION 8

	Make Distinction	Do Not Make Any	More Active in Abortion	Less Active
Obstetricians and gynecologists	57	90	53	4
Surgeons	14	23	14	1
European authorities	9	22	9	0

The replies of those who made distinctions in the treatment of the two instances of sepsis are significant, the vast majority, fifty-three of fifty-seven, are for more active treatment in abortions. Some writers specified criminal abortion as an indication for immediate emptying and exploration of the uterus. Many would use the finger for full-term uteri, the curet for early abortions. Some would pack or douche the full-term uterus and use the curet in early pregnancy. One man wrote that he never invaded the uterus in sepsis after full term, but that he regretted it.

In the general remarks, twenty authors specifically stated that their practice is more expectant than formerly; one that he is more active locally than he used to be. Four state that active treatment sometimes kills the patient and two are frankly undecided as to the best course to pursue, and one acknowledges that he feels helpless in these cases. Twenty-four writers are inconsistent in their general remarks as compared with their replies to the questions, which may have been due to possible ambiguity of the latter. One writer believed that cultures from the urine would enable a diagnosis to be made of the nature of the infection.

It was not expected by the committee that definite and dogmatic answers would be returned to each question, but in this we were agreeably disappointed. It was possible in nearly all cases to determine the actual practice of the writer as to the matter at issue. What was impossible, however, was the proper evaluation of the opinions expressed. As may be seen, the replies came from obstetricians and gynecologists and surgeons holding teaching and hospital positions, from European authorities, and a very few from general practitioners. It may safely be said that the opinions are the best obtainable, yet opinions are of two kinds, resembling in this respect coins and bills. Coins have an intrinsic and a face value, bills only a face value, so also are opinions; and the ones we received are not exceptional, but it would have been a work of supererogation for us to try to separate and classify them. Two writers frankly told us that the opinions of the majority were of no value, but that light must come from the men at the top. In forming our conclusions, due weight was given to this point.

CONCLUSIONS

The majority of accoucheurs and surgeons clean out the septic uterus at once, but a not negligible minority believe that it is safe to trust the expulsion of the infected uterine contents to the powers of Nature, some assisting the same by mild measures such as antiseptic douches and packing. From this it is fair to infer that, in the majority of cases, it has been found safe to invade the infected uterus with finger and curet, and this is borne out by experience. There are, however, many cases in which the infection is of such a nature, or the resistance of the patient of so poor a quality, that the sudden introduction into the system of so large an amount of bacteria and toxins, as is always made by curettage, turns the scale against the patient. She cannot stand the inoculation with autogenous vaccines. The experience of the minority has proved that ovular remnants, even though infected in the uterus, do not create such dangerous conditions as we formerly believed, demanding instant removal, but that it is safe to wait for Nature to erect her own barriers against the progress of the infection, and that temporizing measures, or mildly stimulating ones, often suffice for cure. We all feel the need of some method by which it would be possible to distinguish benign from virulent bacteria living in the genitalia, but as yet no such method exists. When it does become possible, our practice will become more definite. At present one-half of the authorities do not try to make the distinction, holding it impractical. One point that was almost invariably emphasized was that after the uterus was once emptied it should not again be invaded by either finger or curet. Few would permit antiseptic douches. This is a very grateful change from the time when repeated curettages were performed on the puerperal uterus—a procedure which was as rational as curetting the throat in diphtheria. Another interesting fact that was developed is that quite generally the tampon is used to stop the bleeding in infected cases. Evidently there is not much fear of damming back the infection and permitting greater absorption.

ABSTRACT OF DISCUSSION

Dr. E. E. Montgomery, Philadelphia: The profession is indebted to Dr. DeLee for calling attention to the importance of this subject, on which there is the greatest variety of opinions. I must confess that, since my attention was called to it. I have varied somewhat from the statement I made of my own conduct in the treatment of these conditions. It had been my custom in these cases, when I could recognize material undergoing decomposition within the uterus, to remove it. I prefer the gauze-wrapped finger to the curet, as the decomposing material can be as thoroughly removed and with less danger. The cavity is painted with the tincture of iodin and packed with iodoform gauze. The gauze affords advantage in separating the surfaces, favoring the formation of establishing a wall which closes the vessels and thus permits us to remove the putrid material. If the uterus is infected and the ovum still intact I have felt it wise to evacuate the uterine contents. I have had cases in my service at the Jefferson Hospital in which we have waited, and in one of them, when the abdomen was opened later, the entire uterus was covered with an exudate and the pelvis filled with dirty material which necessitated, in our judgment, removal of the uterus in order to give the patient a chance for recovery.

My experience with patients in the hospital—and we see many who have been treated by midwives and subsequently seen by our men of experience—is that it is almost an invariable rule to curet them, sometimes even a second time. This is because they are of a class which, if not relieved by immediate operation, are rushed off to another man, who feels that he must appear to be doing something and again curets. Invariably, I try to bring these patients into the hospital because there they are under control. Although a number have come in with a temperature of from 104 to 106 degrees it has been my rule not to subject them to any further operative treatment. I remember a recent case in which the patient entered with a temperature of 106 after a second curetting. I made no attempt to investigate the uterine cavity. By keeping the patient quiet and under palliative treatment the temperature was normal within a few days and she was able, at the end of ten days, to leave the hospital.

In my experience, although the patient may be suffering from active septic infection, it is unusual to find the streptococcus in the blood. Most frequently we find the blood-culture negative. This is particularly true when the infection involves the vessels, causing thrombus and phlebitis. While it is evident that the patient is suffering from infection the blood-culture is negative. This has been shown by some writers to be due to the fact that streptococcus lodges on the sides of the vein and is not carried into the blood-current.

Dr. J. C. Litzenberg, Minneapolis: I have as a guest at my home a country practitioner, and to that class of physician I give great honor. He said to me last night, "Why did Dr. Murphy emphasize so much his condemnation of the curet? Does anyone use the curet now?" That is pretty good, coming from the country practitioner. Speaking not of the puerperal uterus, full term, but of abortions, I think that every incomplete abortion should be completed by the obstetrician at once, but I am greatly impressed with the ideas of those who advocate the extreme conservative position. I make a distinction between the uterus at full term and the uterus in abortion. It has been my practice always to empty the uterus in abortion, but not immediately in septic abortion. I use gauze and wait. If the uterus is dilated enough so that the placental forceps can grasp any portion of the retained ovum I use the forceps, but not the finger or the curet. If there is no hemorrhage I do not pack; if there is, I do.

I am becoming more and more conservative in the treatment of these cases and I find that the more chance Nature has the more she will do for us.

Dr. Robert T. Frank, New York: The country practitioner may not use the curet, but I am quite sure, from what I have seen in New York, that the city practitioner uses it, and much too often. I have seen cases of what we generally term puerperal sepsis—the term to which Dr. Murphy objected and for which he wants to substitute a more definite pathologic term. I have seen three or four men of high standing in consultation over such a case and each of them interpret the condition in quite a different way. Therefore, it seems to me, just as Dr. Murphy and Dr. DeLee suggested, that so long as we cannot view the organs outside of the body, we should look for a method by which, even if we do make a mistake in interpreting the exact pathologic state, we shall do the least harm; and that, after all, is usually by the expectant treatment.

In abortions I believe that infection is often due to the hasty examination made by the general practitioner when the patient is bleeding and he fears that she will bleed too much. In the puerperal cases the greatest difficulty lies in our inability to rely on the statements of the attendant as to whether the entire placenta has been expelled. If we are sure that the placenta is outside of the uterus after labor, the further question of emptying the organ cannot arise.

Dr. R. S. Yarros, Chicago: Not so very long ago every physician considered it his duty to empty at once the puerperal uterus if there was any suspicion of septic contents. That there were too many uteri curetted and that some of the results were bad, not only because of the use of the curet but because it was used carelessly and by inexperienced physicians, we all admit. It seems to me, however, that the present extreme fear of the curet in such cases is not justifiable since obstetricians in these days are being better trained in surgical work. Most cases in which we are called on to remove the product of conception are either clean, incomplete abortions or cases of sapremic infection, and in my experience I have for many years, after dilating the uterus thoroughly, emptied it with a medium-sized curet, irrigated with iodin solution and lightly packed with gauze with good results. It is a different thing in criminal abortion cases, in which there is more likely to be a streptococcus infection and in which the infection has probably gone beyond the uterus. Dr. DeLee and many of his followers believe that a slow emptying of the uterus, which is accomplished by packing, is the only right way of reaching such cases because of the good results that they have obtained, but I maintain that, in the proper hands, our method has just as good results and, in addition, the patient and the family are not kept in suspense about the outcome.

Dr. J. B. DeLee, Chicago: Dr. Yarros seems to have taken the defensive most sharply of all those who have discussed the report, and therefore I may perhaps be permitted to reply to that particular onslaught. I will quote the experience of my associate and collaborator, Dr. Stowe of Chicago, whose experience was gained in the same institution with which Dr. Yarros is connected. Dr. Stowe had been taught that every septic case should be curetted and he carried out this idea when he came into the hospital. He noticed that all the patients died. So he left them alone and they all recovered.

In conclusion, I shall answer the questions in the circular myself. 1. In septic abortions I try to determine, from the history and symptoms, if there is any perforating injury of the uterus. In this case, the abdomen is opened at once; otherwise the uterus is lightly packed with iodized gauze. Next day the gauze is removed and, unless the cervix is fully dilated, the uterus is again packed for twenty-four hours. The uterus is then emptied by means of the ovum forceps and the finger. 2. The treatment is the same as No. 1. 3. After full term or near term labor the uterus is not invaded unless there is hemorrhage. The patient's shoulders are raised to favor drainage and hygienic treatment and good nursing are provided. 4. I do not believe in active interference at once. When I do empty the uterus, I remove large loose masses by means of the ovum forceps, locate small adherent pieces and separate them with the finger, and only exceptionally use the curet. 5. When hemorrhage complicates sepsis, I tampon the uterus, and repeat this again, or twice, if necessary. 6. In case the presence of ovular remnants is only suspected, I do not interfere. 7. I always try to distinguish between sapremic and septicemic states before operating, but have never felt sure in operating that I was not starting a fatal illness. 8. I make distinctions in the treatment of sepsis after abortion and that after full term or near term delivery. In septic abortions I feel much safer in invading the uterus with finger and ovum forceps, and in a few cases I use the curet—never after labor. I am growing more and more conservative in the treatment of sepsis, and am delaying the time of interference as much as possible, to give Nature time to erect a good barrier.

SOME NEW MINNESOTA LAWS ON TUBERCULOSIS *

P. M. HALL, M.D.
MINNEAPOLIS

The discovery of the tubercle bacillus has changed all of our definitions of the disease. The discovery of a specific cure may change many of our methods of control, or our attempts at control. Ultimate control is the aim of all new methods or measures. The last fight against the disease will be made by the public health workers of the world. Changes have occurred both in treatment and in administrative methods; but always there has been progress. The question of control, of prevention rather than cure, naturally appeals to the public health worker. Minnesota has had some legislation on tuberculosis. It has been defined as a contagious and infectious disease and made reportable. A state sanatorium was erected about five years ago. The legislature authorized the appointment of a state advisory commission for this institution. These are some of the things which have been done looking toward control. Two years ago the legislature passed a bill authorizing counties to issue bonds for the purpose of erecting tuberculosis sanatoriums. This, it was thought, would stimulate interest which would result in the erection of sanatoriums in various parts of the state. It failed of its purpose. At the last session, therefore, the legislature passed another county sanatorium bill with the entirely new feature of state aid added. The bill also carried with it an appropriation of $500,000 to make the measure effective.

Some of the features of the bill may be of general interest. It provides that any county or group of counties, through their boards of county commissioners, shall have the power, with the advice and approval of the advisory commission of the Minnesota Sanatorium for Consumptives, to establish and maintain sanatoriums for the treatment and care of persons affected with tuberculosis. These sanatoriums may be established by a majority vote of the commissioners of any one county or group of counties, whenever the cost of construction to be paid by the county or group of counties shall not exceed such a sum as may be raised by a tax levy of not to exceed one mill on the dollar of the taxable property of any such county or group of counties. Whenever the cost of construction shall exceed the amount that might be raised by a one-mill tax, then the two questions of (1) whether or not such sanatorium shall be established and (2) whether or not such bonds shall be issued to defray any county's portion of the cost thereof shall be submitted to the voters of such county, and the sanatorium shall not be established unless a majority of the voters of such county shall vote in favor of each of the two propositions submitted to them.

If the county commissioners of any county shall refuse to construct such a sanatorium, then, on a petition of not less than 5 per cent. of the freeholders of such county, such question shall be submitted to the voters, and if a majority of the voters of such county, voting thereon, shall vote in favor of constructing such a sanatorium, then such a sanatorium shall be erected. On the decision to establish and maintain a tuberculosis sanatorium, the county commissioners shall appoint a commission consisting of three members, at least one of whom shall be a licensed physician, and whose appointment, before becoming effective, shall be approved by the State Board of Health. Such county sanatorium commission shall have full charge and control of all moneys received for the credit of the tuberculosis sanatorium and have full charge and control of the location, establishing, and maintenance of any sanatorium. But no site shall be secured and buildings erected or equipped without the approval and consent of the Advisory Commission of the Minnesota Sanatorium for Consumptives. Before final action is taken the plans and specifications shall be submitted to the State Board of Health for approval.

The State Board of Control shall have full power and control over the construction and equipment of any such sanatorium. A county or group of counties desiring to erect a sanatorium shall through their boards of county commissioners appropriate one half the necessary funds and deposit the same with the state treasurer. The bill further provides that the amount contributed by the state shall not exceed $50,000 to any one county, and that no sanatorium shall be constructed of smaller capacity than twenty beds.

After their construction these sanatoriums shall be under the charge and control of the county sanatorium commission. Preference is to be given to the patient with an advanced case and to the resident of the local county, but no person is to be turned away for lack of means if there is an available bed for his care. In case there are no relatives who should be responsible for the care of the patient, the state will pay to the county treasurer of the particular county the sum of five dollars per week. In counties in which a contract has already been let, or in which a sanatorium has already been built, the state shall refund to the particular county a sum equal to five hundred dollars for each available bed. To carry out the provisions of the bill an appropriation of $500,000 was made.

Besides this county sanatorium bill the legislature passed a bill for the better control of tuberculosis. It requires the reporting of all cases of the disease by physicians. This is provided for in a former law. The law further says that it shall be unlawful for the authorities in charge of any penal or charitable institution to care for any person afflicted with tuberculosis in the same room or ward with other inmates. Another section provides that the health officer may report to the board of county commissioners any person afflicted with tuberculosis whom he considers a menace to his family or the public, and, on the approval of the board of county commissioners, the health officer shall have the power to remove such person and place him in a public hospital or sanatorium in which he shall remain until discharged by the superintendent of such institution. This is another way to protect the public by compulsion in case protection by education has failed. This wise law would be without effect unless some place were provided where the vicious consumptive could be restrained. This is met, however, in the provision by the state for county sanatoriums.

Another provision of this bill is that no teacher, pupil, or employee about a school building who is afflicted with tuberculosis shall remain in or about such building, without a certificate from the board of health, or an agent duly authorized by the board of health, that such person is in no sense a source of danger to others. It is a poor rule that does not work both ways, so teacher and pupil are treated alike under this act. It provides for the proper disinfection of the premises following death or removal and for placarding the premises with a warning notice to the public until this has been done. This is thought to be the first bill providing state aid in the construction of county sanatoriums. How well it is to work

---

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis June, 1913.

out remains to be seen. The provision against the vicious consumptive is different than other laws in that it at least provides a place where the vicious individual may be restrained.

Pillsbury Building.

ABSTRACT OF DISCUSSION

Dr. S. A. Knopf, New York: I wish to take exception to a few points in Dr. Hall's paper. First of all, is tuberculosis a contagious or a communicable disease? In the law he cited it is called a contagious disease. Contagion comes from the Latin *contingere*, to touch. Is the mere touch of a tuberculous individual sufficient to transmit the disease? In New York we make a distinction between a contagious and a communicable disease, and I really believe that it is most unwise to classify tuberculosis with leprosy or small-pox, which are really contagious diseases. By calling tuberculosis contagious, we increase phthisiophobia, which is a disease in itself and productive of much harm and misery to the antituberculosis worker as well as to the patient. I hope that the law will be revised and that the word "contagious" will be replaced by the word "communicable." I hope that Dr. Hall will make a little more clear what he really means to do with the vicious consumptive. At the Riverside Hospital-Sanatorium, in which I am senior attending physician and into which we receive patients from all classes of society, some of them forced in, we occasionally find it difficult to restrain the refractory patient who does not wish to stay. The hospital is situated on an island and escapes are rare, but sometimes a patient will attempt to swim across. I should be most grateful to Dr. Hall if he would tell me what they do with the consumptive patient who voluntarily expectorates on the floor and who behaves badly in other ways, such as fighting with his fellow patients, using abusive language, etc. It was stated that disinfection should take place every time a patient dies. I should like to ask the speaker whether it would not also be a wise thing to inquire, once in a while, where and how the patient lives. I believe that we are neglecting that feature of prevention. It is well and good to disinfect after the patient has died; but sometimes consumptive patients live a long while and in the meantime have a chance to infect many apartments; hence, I believe that the disinfection of the domicile should be periodical and not only after removal at death. In the antituberculosis campaign we must always bear in mind that we are not to combat the tuberculous, but tuberculosis, which is a disease of the masses, and to combat it successfully we must have the combined action of a wise government, well-trained physicians and intelligent people—that is to say, the citizens at large.

Dr. V. C. Vaughan, Jr., Detroit.: There are three distinct types of tuberculous individuals with which we have to deal. The first is the advanced consumptive, who is a source of contagion to others, but is necessarily confined to bed; consequently, the area which is infected at any time is limited in extent. Persons of this class should, of course, be cared for in hospitals for the tuberculous. These hospitals should be state institutions located at some remote part of the state or the community in which the individual lives. Patients with advanced cases are glad to go to hospitals, provided that these hospitals are easy of access to their friends and relatives. This is a very important point, which evidently has been taken into consideration in connection with this law. The second type of case causes the greatest trouble — the moderately advanced tuberculous person who goes from place to place giving the infectious material and who continues to be a source of infection over a long period of years. These patients, of course, require sanatorium treatment; but it is impossible to build hospitals of sufficient extent to provide for them during the remainder of their lives. The hospital should be used as a training school for these patients. They should be taught there how to prevent the spread of infection to others and how to take care of themselves in institutions of this sort, and then they should be returned to their homes, and the public health authorities should demand that they follow the instructions which they have received. The third class, which we are finding more and more frequently, is made up of patients with incipient or early tuberculosis. These persons are not infectious; they never cough; they never will cough; and yet when the public-school teacher goes out from a sanatorium for tuberculosis to resume her vocation, she cannot find a position because she has been an inmate of a tuberculosis institution. This is a practical point and one arising constantly. In Detroit, I have even allowed such persons to refrain from reporting that they have been in institutions for the care of the tuberculous. The physician who will not allow anyone who has ever received treatment in an institution for tuberculosis to enter a family and perform certain household duties is partly to blame for this. That is going too far and is one of the things that keeps us from reporting all our cases.

Dr. Walter J. Marcley, Minneapolis: As a member of the State Tuberculosis Commission appointed by the Governor for the purpose of studying conditions and recommending legislation, I had something to do with the framing of these laws. In planning for institutions for the tuberculous we had in mind the need of popularizing the sanatorium treatment of the disease. We must remove what Dr. Knopf and others call "phthisiophobia" and teach the people that having tuberculosis is not so awful. We have felt that the clause in the law referred to providing for compulsory removal from the home should be administered very cautiously, but that its enforcement will be required in some rare instances. In Minnesota we wish to make these institutions, near the homes of the sick, attractive in every way so that patients will desire to go and remain as long as necessary. Furthermore, these sanatoriums will no doubt be — and they must be, if they are to meet the purposes for which they are intended — educational institutions in the communities in which they are established.

Dr. J. N. Hurty, Indianapolis: It is well to view every question from every angle. A soldier, who was addicted to morphin and whisky, came to me and wanted relief. He told me that he had little care for his old age; that he could dissipate and plunge into all manner of excesses because the country would take care of him at the Soldiers' Home. I find that the miners prefer to have small-pox, if they can have only a mild attack, in order to have two weeks' vacation at the expense of the state. They like quarantine and court it. Are we not liable sometimes to take too much care of the afflicted and of the unfit? Are we not putting a premium on the very conditions we are combating? To what will this lead? Insanity is increasing in my state, in which we have five great institutions, costing a million dollars. It costs $2,000,000 annually to take care of our insane and other defectives. We must now build a sixth insane hospital. Are we to keep on building institutions and doing nothing to prevent disease?

In Indiana during the last decade we have prolonged the duration of life of the insane eight years through the practical application of hygiene. Thus by our kindness and mercy and charity we have put forty thousand years more of burden on the shoulders of the citizens of Indiana. It seems to me sometimes that we are only increasing charity conditions. There is much talk about an old-age pension. If we give these pensions indiscriminately, just because a person has reached the age of 65 or 70 years, I believe that we will be in danger of increasing dependency and immorality; but if we give an old-age pension to those who arrive at a certain age in a certain stage of health, without syphilis, and immorally acquired diseases, we will be taking a step in the direction of prevention.

Dr. Otto P. Geier, Cincinnati: If quarantine against small-pox is worth while, quarantine and forcible detention against tuberculosis is certainly worth while, for it is a much more dangerous disease. Cincinnati has, I believe, as broad a program of prevention as any city. We have there the second highest death-rate from tuberculosis of any city in the country. Over a thousand people die every year in Cincinnati of tuberculosis. The Anti-Tuberculosis League has conducted an active campaign expending about twenty-five thousand dollars a year. We are building new additions to the Tuberculosis Hospital. We now have bed capacity for three hundred. We are building shacks and a detention ward. I want to emphasize the value of a detention ward. The superintendent of the hospital stated in his 1912 report that the forty thousand dollars expended last year on the tuberculosis problem was largely wasted because the average stay of the greater percentage of the patients was less than forty days. This percentage was made up of the riffraff of the town, the unemployed and unemployable, who were serious sources of infection when they went back to saloons and cheap tenement houses.

Dr. C. Hampson Jones, Baltimore: A similar law was framed in Maryland two years ago, but our legislature did not see fit to pass it. It differed from the present law only in the point that we have a central government in the board — a commission appointed by the governor several years ago — in charge of all the hospitals. I think that it will be thought best always to have one doctor on the several boards managing hospitals. Forcible detention is oftentimes really a great necessity, but, as a rule, the number who go voluntarily to the hospital is so great that we need not bother about the others.

I think that one phase of our work is really wrong. The so-called incipient case is cared for by the state or by the local communities. While I should not like to prevent any early case of tuberculosis being cared for by the city and the state, yet I think that, inasmuch as the state and cities are working for the protection of the public, they ought to do that which is the greatest protection for the public, namely, segregate the tuberculous.

Dr. L. S. B. Robinson, St. Paul: Dr. Knopf has asked the question, "How can we control unruly patients?" One method is illustrated by a case recently reported to me by one of our nurses. The patient was a man with a large family of children; he was careless regarding sputum, ugly and uncontrollable. He was permitted to become drunk and then arrested on a charge of disorderly conduct and committed by the judge for sixty days to the hospital, instead of to the workhouse. When he gets out he will be rearrested and recommitted unless he gives promise of behaving himself.

Dr. S. A. Knopf, New York: I believe that Dr. Jones is mistaken about the danger of the advanced case and the non-danger of the early case The patient with the advanced case may, I grant, produce more tubercle bacilli, but he is usually confined to four walls or his apartment, while the patient with the early or moderately advanced case is the typical bacilli carrier and distributer. He expectorates countless bacilli, and, if he is careless, he is a much more dangerous person than the patient confined to his bed or room. Both classes of patients should be taken care of and rigorous precaution concerning their sputum should be insisted on. To allow patients to become drunk in order to control them might be a pleasing pastime, but it would be rather expensive to the community; New York would, I am sure, not wish to have the hospitals spend money that way. To be serious, let us rather try another method and make the hospitals for the advanced cases so attractive and treat the patients so well that they will be only too glad to remain within them. Let us make the institution for the advanced cases not a place of despair but a place of hope. To this end I would plead that all so-called hospitals for consumptives be called hospital-sanatoriums as I designated the institution on North Brother Island. It is called the Riverside Hospital-Sanatorium. Many patients have the idea that to go to a sanatorium means to get well — to go to the hospital means to die. The hospital-sanatorium should be built near the city so that the patients' friends can see them frequently. Let us treat the advanced cases with the utmost kindness and consideration; make them feel that the hospital-sanatorium is a true home, in which it is even pleasant to die, if they have to die, and there will be no difficulty in filling our hospital-sanatoriums for advanced cases.

Dr. Liston H. Montgomery, Chicago: In certain instances of pulmonary tuberculosis a hereditary condition prevails, I believe, as well as a contagious or infectious element. Why use the word communicable? I think that this term is less understood by the laity, and given less value, than the term contagious; hence less reliance or less care will be used in taking precautionary measures to prevent the spread of the disease to others, than would be used if they were taught that the disease is contagious and infectious. Why do we disinfect and fumigate the premises of a patient who has died of tuberculosis, if contagion or infection is not present? Although I refer to tuberculosis as being hereditary in certain cases, I know that this is not the popular scientific view nowadays; but how are we going to get around the fact that a mother in an advanced stage of pulmonary tuberculosis gives birth to a child that lives perhaps a few weeks and is found at necropsy to have a well-marked tuberculosis? Call it predisposition in the child or susceptibility if you will, but to me it appears to be an undeniable fact that the disease was directly transmitted to the child from the mother; hence I have never been convinced that the disease is not hereditary. I do not wish, however, to be understood to say that it is always hereditary. Be this as it may, how is it that within the last few years we are drifting toward the science of eugenics?

Dr. Guy L. Kiefer, Detroit: At first, when I talked to lay audiences about these diseases, I believed in calling them all communicable. Now I believe in calling them all contagious; as we go along in the belief that all of the diseases are spread by contact directly or indirectly (and you can make the term indirectly just as broad as you wish to), I believe that it is better to have one term. We ought not to try to mystify the people whom we are trying to educate by using different descriptive adjectives for the different diseases, so long as the result we are trying to attain is to some extent dependent on the adjective we use. In New York, Dr. Knopf says the adjective in the law is communicable; in Michigan, the adjective used in the law is infectious, and in Minnesota it is contagious. If we use the word contagious, the very fact that the disease is described as contagious teaches the people some of the things that we are preaching, that they must not come and stay in close contact with a tuberculous patient, that they must not sleep together, in short, that they must not do the things that will spread the disease, bring the disease to them, by contact. It seems to me contagious is a good word, and that it would be well to let it stand.

Dr. S. A. Knopf, New York: If we should not make any distinction, if everybody should be taught that tuberculosis is contagious and that they should avoid coming in contact with tuberculous patients, where are we going to draw the line? Where are we going to get nurses and the help needed in sanatoriums and hospitals? We may even have difficulty in getting doctors. To be liable to contract tuberculosis one must be strongly predisposed, on the one hand, and, on the other, constantly exposed to the inhalation or ingestion of the tubercle bacilli. There is enough phthisiophobia rampant now, and we would better teach that tuberculosis is not a highly contagious but only a communicable disease and that the honest consumptive is not a danger to his fellow men.

Dr. J. W. Trask, Washington, D. C.: I do not think that the statement that the fear acquired by many persons of contracting tuberculosis would make it difficult to get nurses or to otherwise care for the sick or convalescent is entirely in accordance with the facts. Little, if any, difficulty is found in securing nurses for other infectious diseases, even for the most dangerous contagious ones. For many years those interested in the campaign against tuberculosis have endeavored to create in the minds of the people a wholesome fear of and respect for the disease, believing that it was only through the development of this fear and respect that people could be brought to properly protect themselves from infection; that only by this means could proper precautions be secured in the average home; that fear of the disease was necessary to keep the sick from sleeping with the well, to cause a proper disposition of the sputum and also proper cleanliness of dishes used by the sick. This fear of tuberculosis is a thing that has intentionally been fostered for sometime and has undoubtedly been of great assistance. I believe it to be a necessity in the successful fight which civilized nations are waging against the disease. If this fear at times creates hardship it is unfortunate, but must be expected. If the household in employing servants rejects all applicants who appear to have tuberculosis, an occasional injury may be done. If those working together in an office glance suspiciously at a coworker who has become emaciated and afflicted with a chronic cough, a hardship may occasionally be inflicted. In developing this necessary fear of the disease it is impossible that each person shall acquire just the right kind of fear and shall know just when to fear and when not to fear. To be effective the fear will usually need to be greater than that actually merited by the characteristics of the disease and its tendency to infect persons. The control of the disease will probably be much more readily accomplished with too great fear in the minds of the people than with too little fear.

DR. P. M. HALL, Minneapolis: We used the three words—contagious, infectious and communicable — in the same bill; thus we did away with the finer distinctions as to these various terms. I used the word contagious as a matter of convenience. My own belief regarding the vicious consumptive is that sanatoriums should be made so attractive that the patient will come voluntarily. Still, I believe that we should have the power to remove the vicious consumptive. We provide in the law for disinfection following death, and removal of the living patient from one place to another. If the patient dies in the place where he was taken sick, we disinfect that place. The large cities of the country to-day are taking care of the bulk of contagious diseases. The idea is to bring the sanatorium to the consumptive in order that he may be near his home. The question of state aid was suggested by the fact that many of the counties in the state are poor, and that the state could wisely spend money to combat this disease. We must get away from the idea that we are going to get rid of consumption on a cheap basis. It may cost a little more money to conduct a sanatorium of a hundred beds, proportionally, than one of 250 beds; something will have been gained in the way of education if the sanatorium is established in a county near at hand, where the people will learn from the institution that it is their duty to care for an infectious disease in their own immediate neighborhood. The consensus of opinion at present is that the death-rate from tuberculosis is decreased in proportion to the increase in number of beds. There is probably no city in the world that has done more effective work and with more definite, positive results, than the city of New York; and New York to-day has a proportionately larger available bed supply than any other city. In the state of Minnesota at present there are less than four hundred beds; and yet we have an annual death-rate of almost three thousand. Think of trying to meet these conditions with less than four hundred beds.

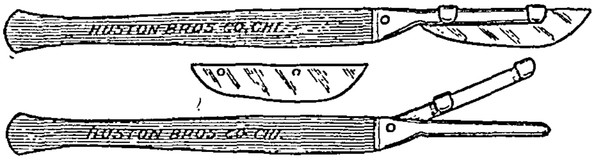
An advisory commission has definite supervisory control of all of these county sanatoriums. The idea was to place the management in a commission near at home; but the advisory commission has supervision of the county commission. Provision for the pay for free patients by the state is insured by the regulation that the state pay five dollars per week, in case the advisory commission certifies that the institution is properly operated and conducted.

An Inexpensive Efficient Sputum-Cup.—An inexpensive sputum-cup, to be used in an ordinary holder, may be made of ordinary white fiber manila paper, folded and dipped in hot paraffin, which, hardening immediately on exposure to the air, glues the overlapping edges and gives support to the box. Water heated to 100 F. will not penetrate a box made in this manner. Water at ordinary temperature will remain in them until it evaporates. Sputum-boxes may be made in this manner at a cost of 8 cents per hundred. The advantages of such sputum-boxes are: 1. They are inexpensive. 2. They afford employment for convalescing patients who make them. 3. Since they are white, the faintest tinge of blood is readily observed. 4. Paraffin being highly combustible, the destruction of any bacteria present is assured, when the used cups are burned.—ROBERT M. ALEXANDER, M.D., First Assistant Physician, State Asylum for Chronic Insane, Wernersville, Pa.

DETACHABLE SCALPEL BLADE *

J. A. MATLACK, M.D., LONGMONT, COLO.

In attempting to use safety-razor blades in surgical work I have found that a stock razor blade with a straight cutting edge is not practical. Such a blade if held in the usual position will have only the distal corner in contact with the flesh and will tear rather than cut, especially if used in the deeper parts of a wound. If the detachable razor blade is to be adapted to the surgeon's scalpel the blades as ordinarily made cannot be used with entire success, but must be specially ground with a rounded extremity or "belly" as in the usual type of scalpel. The accompanying illustration shows the instrument as I have modified it to meet this requirement.



FRACTURE OF ANTERIOR SUPERIOR SPINE OF ILIUM FROM INDIRECT VIOLENCE

CHARLES AUER, M.D., BRONX, N. Y.
House Surgeon, Lincoln Hospital

The infrequency of this injury from indirect violence and the ease with which it may be overlooked, warrant a report of its occurrence.

On June 20, the patient, J. J., aged 23, took three steps forward, kicked violently at a football and missed it. He did not fall from the force of the kick, but immediately felt weak on his right side when he attempted to walk. After some manipulation of the leg by friends, he was able, by limping, to walk, and came by himself to the hospital, suffering little pain except on sharp forward flexure of the thigh. The family and previous history of the patient were negative. He was a laborer in a motor-vehicle shop, doing much heavy lifting.

On examination the patient appears to be a well-developed young man with powerful muscles. There is nothing remarkable in his physical condition except locally. On inspection, the skin over the anterior spine of the ilium is slightly depressed; about 3 inches below the injury there is a slight discoloration. On palpation over this site the fingers find a point of tenderness and crepitus. Crepitus is obtained also by extending and flexing the patient's thigh. The fragment may be indistinctly felt displaced about 1 inch downward and apparently attached to the anterior fibers of the tensor fasciae femoris.

The diagnosis was confirmed by roentgenoscopy.

With the thigh flexed and slightly abducted, the fragment was replaced and held by means of a broad band of adhesive plaster passed tightly around the pelvis.

Treatment of Boils.—I have used the following mixture in my practice for seven years:

	gm. or c.c.		
Liq. potassii arsenitis	0	2	♏ iij
Liq. ferri peptonati cum mangano N. F., q. s. ....ad	5	0	ʒ j

This is a dose. Take after meals.

The taking of 8 ounces of the mixture has resulted in a prompt cure in every case, with no return of the boils.—LEROY E. CHAPMAN, M.D., Warren, Pa.

The Blind Leading the Blind.—Teaching sex-hygiene by people who do not even know the definition of "sex" is about on a level with quack advertisements of cures for all ills.—*Buffalo Sanitary Bulletin.*

---

* Previous references to this subject will be found in THE JOURNAL, Dec. 14, 1912, p. 2127; Dec. 28, 1912, p. 2325; Jan. 4, 1913, p. 67, and April 19, 1913, p. 1245.

Therapeutics

TYPHOID FEVER

(Continued from page 1459)

IMMEDIATE TREATMENT OF SUSPECTED TYPHOID

The symptoms of such a patient are usually more or less diarrhea, loss of appetite, a coated tongue, more or less headache, and considerable fever. There may be backache, muscle pains and a slight cough or mild bronchitis, with perhaps a history of nose-bleed and of more or less malaise or debility lasting for the previous two or more weeks.

Such a patient should receive a cathartic immediately, and none is better than calomel in a dose considered sufficient, *not* in divided doses. The hospital method of giving 1/10 of a grain of calomel every half hour. or hour. for ten doses is ordinarily very bad treatment. The digestion is more or less disturbed, nausea is more likely to be caused, and fretty, troublesome diarrhea is more likely to occur than with a single properly estimated dose of calomel. The following method of giving calomel is one of the best:

	gm. or c.c.		
℞ *Hydrargyri chloridi mitis* ...	0|20	or	gr. iij
Sodii bicarbonatis	1|0		gr. xv

M. et fac chartulam 1.
Sig.: Take at once.

It is best to give calomel either with a glass of milk or with a cup of tea or coffee, or with any other simple food. such as toast or crackers.

Castor oil administered by some more or less tasteless method will be as efficient as the calomel so far as the bowels are concerned, although the calomel perhaps washes out more of the old bile, and thus improves the condition of the liver.

While waiting for a positive diagnosis from the blood-test there is no reason why the patient should be uncomfortable from his high temperature or should suffer from his headache, and at this stage of uncertainty cold baths, spongings and even a trained nurse are entirely unnecessary, as many a patient shows these symptoms without typhoid fever being present. Therefore the following prescription is of value:

	gm. or c.c.		
℞ *Acetphenetidini*	1|50	*or*	*gr. xx*
Sodii bicarbonatis	2|50		*gr. xl*

M. *et fac chartulas* 5.
Sig.: One powder every four hours, unless the headache ceases and the temperature becomes low.

Presumably but two or three of these powders, at most, will be taken on the first day; the other two may be taken on the following day, if needed.

If a small dose of acetanild, as 0.1 gm. (2 grains), is preferred to the preceding dose of phenacetin, it may be used in the same manner.

The patient should receive very little food for the first twenty-four or forty-eight hours, but plenty of water. The food might consist of coffee and tea, toast, some simple broth or malted milk, or a little milk.

Even before the diagnosis is made the stools must be cared for so that infection of others may not occur.

TREATMENT AFTER THE DIAGNOSIS HAS BEEN CONFIRMED

Typhoid fever being established, absolute bed rest, no matter how mild the case may be, should be insisted on. The best possible room for the illness should be selected. The nurse should be the best obtainable, as the disease is typically one in which good nursing is more essential as a preventive of infection of others and as a preventive of complications than any sanitary orders that may be given or any medicine that may be administered. Proper hygienic and sanitary measures should be immediately inaugurated, and the board of health notified of the disease.

In a disease that is primarily so distinctly intestinal as is typhoid fever, the diet and the care of the bowels are of paramount importance. The diet has been sufficiently discussed above. The care of the bowels has been subject to a great deal of discussion. The nearer surgical cleanliness is obtained in the intestine if typhoid ulcers are present the better will the patient do. If the bowels are properly moved there is less putrefactive substances in the intestine, there will be less bacteria and their toxins, less absorption of such toxins, and therefore less fever, less cerebral disturbance such as delirium and insomnia; there will be better nutrition, less liver disturbance, less likelihood of kidney disturbance, less likelihood of the colon bacillus migrating and adding its disturbances to that of the typhoid bacillus, less tympanites, or absence of tympanites if the management of the bowels is properly maintained, and with this absence of tympanites greatly diminished danger from hemorrhage and perforation, and less likelihood of cardiac failure. It should be reiterated that tympanites, once supposed to be a constant symptom of typhoid fever, is abnormal to it, if the diet is correct and the bowels are properly managed. And it is the tympanites that causes disturbed respiration, heart failure, such stretching of the intestines as to cause danger of tearing apart of the ulcerated tissues, and consequent hemorrhage; or the pressure may cause perforation through the base of an ulcer and consequent peritonitis; besides, the increased intestinal pressure promotes unnecessary absorption into the lymphatics and blood-vessels of the intestines. Tympanites is pernicious in typhoid fever, and if it occurs there has been some mistake in the orders of the physician or in the management by the nurse. Case after case of typhoid fever may be carried through its course from start to finish with a soft, flattened abdomen.

Any particular food selected that seems to cause tympanites or indigestion should be stopped, and some other nutriment substituted. The bowels should be moved daily by artificial means, and not as a diarrhea. Diarrhea should not be tolerated. The physician should cause the bowels to move, and then prevent fretty, frequent bowel movements. These, however, will often not occur if the bowels are daily properly moved. A good method of causing these movements (not the only method) is to administer a compound of aloin tablet every other night, with one of the feedings, so that it will not be taken on an empty stomach. A good combination is as follows:

	gm. or c.c.		
℞ · Aloini	0|02		gr. 1/3
Strychninae sulphatis	0|0015	or	gr. 1/40
Pulveris ipecacuanhae	0|03		gr. 1/2
Extracti belladonnae foliorum	0|006		gr. 1/10

M. et fac capsulam (or tabletam) 1.
Sig.: One capsule at night.

An active preparation of cascara may be substituted for the preceding, as 3, 4, 5 or 6 grains of the extract in a good tablet. Neither aloin nor cascara irritates or causes inflammation in the intestines, and the increased peristalsis that they cause is nothing like as severe as will be caused by the irritation of the intestine from imperfectly evacuated fecal matters. Of course, if the intestines are allowed to become more or less paralyzed by prolonged tympanites, it may be at first difficult to start the bowels to move properly with simple laxatives.

After the bowels have moved once thoroughly or twice in ordinary amount, the patient should receive 1/10 grain of morphin. This will be sufficient to check the peristalsis and stop more movements for perhaps nearly twenty-four hours.

On the alternate day the patient should receive a rectal injection of an ounce of glycerin and an ounce of water. This will cause complete evacuation of the large intestine. If for any reason the bowels do not move on the day following the administration of the aloin, the glycerin enema may be given on that day.

The subject of bowel antiseptics is another one that has caused a great deal of discussion, and especially as to their value in typhoid fever. Dilute hydrochloric acid has been advised, not only because it aids digestion, but also because this physiologic acid increases the normal secretions of the intestines and makes digestion better, and while in the stomach it is of course an antiseptic. If the fever is severe and the patient is seriously ill, in all probability the hydrochloric acid in the stomach is not properly secreted. Certainly, a sour drink consisting of five drops of dilute hydrochloric acid in a wineglass of water, after the protein meals, may often be advisable. Iodin in small doses has been used, and various forms of creosote and other phenol preparations, but most of these seem inadvisable as all more or less tend to cause irritations, and the strong phenol preparations tend to irritate the kidneys.

One of the most satisfactory bowel antiseptics is phenyl salicylate (salol), because it is inert in the stomach and does not break up into its component parts (namely, salicylic acid and phenol) until it reaches the upper intestine. How far down the intestine such antiseptic action is active cannot be stated, but that it does some good there can be no question. Such activity may be demonstrated in all acute diarrhea attacks. It certainly prevents fermentation.

The dose of salol to be given in typhoid fever should be small, because it should be long continued. A capsule containing 0.20 gm. (3 grains) given once in six hours is sufficient, and of value. If albumin appears in the urine, the salol should be stopped.

Many times the administration of yeast, as above suggested, will not only act as a laxative, but will prevent fermentation in the intestines and sometimes clean a badly coated tongue. If yeast is given, salol should be stopped, as the two activities should not be combined, the salol being likely to inhibit the activity of the yeast fungus.

If for any reason the salol should be stopped, and perhaps always when convalescence is about to begin, or perhaps throughout the illness more or less constantly, hexamethylenamin (urotropin), on account of its antiseptic action during excretion by the kidneys, should be given perhaps in 0.30 gm. (5-grain) doses, dissolved in half a glass, or more, of water, and administered three times in twenty-four hours. It is quite probable that this drug may prevent typhoid bacilli from obtaining a harbor in the gall-bladder and in the kidneys, the two regions that are most likely to show typhoid bacilli long after convalescence, but recent investigations indicate that there is no reason to attribute to it antiseptic powers in cavities or tissues whose reaction is alkaline or neutral. It is rare that this drug causes any irritation of the kidneys or bladder, but, if it does the drug, of course, should be stopped.

The management of the temperature in typhoid fever is one of the most important problems. A continuous high temperature will surely waste the patient's body and vitality. Not only does the fat disappear and the skeletal muscles degenerate, but the vital organs of the body become impaired, and more especially a myocarditis develops with consequent impaired circulation.

Of course the best way to treat this high fever is to prevent it, and the diet and care of the bowels above outlined will and does very many times prevent high temperature. Good sleep and fresh, cool air, perhaps aided by an electric fan, and thin bed-coverings are of aid in lowering the temperature. A restless patient, suffering from more or less insomnia, will always have an increased temperature. No drugs to lower the temperature should be given after the first day or two. The only active measures advisable are hydrotherapeutic. The severity of the tub bath is inexcusable, and under any circumstances the measure could rarely be carried out properly in a private house. The value of other strenuous hydrotherapeutic measures is also questionable. In fact, even the value of ice sponging has probably been overestimated. Sponging with tepid water, or with water a few degrees below the body temperature, is probably generally as efficient as is cold sponging in reducing the temperature, if one takes the whole twenty-four-hour temperature into account and not the immediate drop. The discomfort caused by and the dread of ice-water sponging and the reaction that must occur almost discounts its good effects. Tepid sponging need not be used more frequently than once in six hours. Sponging with iced water every three hours if the temperature is above 101.5 or 102 is cruelty without equivalent results.

A coil on the abdomen through which is running iced water is often of value, and causes no distress or discomfort after the first hour or two. Iced or cold compresses to the abdomen are of advantage. They diminish the temperature and tone the circulation by causing contraction of the abdominal vessels, and increase peristalsis and cause evacuation of gas. But even this simple measure should not be used unless the temperature is above 102.5 at least, and perhaps only when it is above 103.

The value of the ice-cap is doubtful, unless there is actual meningitis. Prof. H. G. Barbour[3] showed that when cold was applied to the brains of rabbits the temperature was increased, while when heat was applied the temperature was depressed.

This physiologic finding is worthy of very careful clinical consideration. The ice-cap is generally a discomfort, and it probably seriously interferes with the nutrition of the hair, and is one of the causes of loss of hair after fever.

---

[3] Barbour, H. G., Arch. exper. Path. u. Pharmakol., 1912, lxx, 1, and referred to editorially in THE JOURNAL, Feb. 15, 1913.

Multiple Pregnancies.—A Mexican exchange reviews the cases of multiple pregnancy on record, citing M. Baudouin to the effect that there are six known cases of a sextuple pregnancy (1904), and reporting further an authentic case in a Mexican town in 1911. Dr. N. Leon of the Morelos Hospital of Morelia, State of Michoacan, Yucatan, then reports that a creole woman of 27 in his town at her second pregnancy after an interval of nine years aborted and expelled twelve fetuses, labor and the puerperium being entirely normal. The family buried the fetuses, but they were dug up by the police and are now preserved in the museum; they measure 2 inches each. Leon was told that there was a single placenta for the whole.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, OCTOBER 25, 1913

THE CONVERSION OF CARBOHYDRATES INTO LACTIC ACID IN THE TISSUES

The average person consumes about a pound of carbohydrate a day in his diet. This is no small contribution to the body's transactions, and calls for reactions of considerable magnitude to convert this nutriment to its proper uses. Yet so accustomed are we to think of the foodstuffs as being "utilized" or "assimilated" or "converted" or "burned up" in some semimysterious fashion to meet the exigencies of every physiologic situation that few persons, even among those trained in the school of nutrition study, stop to consider precisely what the metabolism of each of our standard nutrients actually involves. What are the successive chemical transformations to which sugar, protein and fat are subjected prior to the elimination of their waste products? And the student of medicine will add to this query: What are the *perversions* which these reactions may experience under what is designated as pathologic disturbance?

That carbohydrates ordinarily leave the alimentary tract and enter the circulation in the form of relatively simple compounds—the hexoses or six-carbon sugars—is now generally accepted. The sugars of which glucose affords the most familiar type are preeminently the physiologically "available" or usable carbohydrates. Information as to what happens to them in the tissue laboratories has been sought by a variety of methods, each of which has been more or less fruitful. One may feed large quantities of carbohydrates to the normal or diabetic organism and search for fragments which have escaped complete transformation. Again, conjectured intermediate products may be furnished to the organism and their fate pursued. By this plan it has, at any rate, been demonstrated that the sugars are not directly burned up without further cleavage in the body; for such primary oxidation products as one might expect from the sugar are not readily used in the organism. They are represented by saccharic, mucic and oxalic acids, all of which act more like poisons than like normal stages in the combustion of our food sugars. The method of perfusing isolated organs with carbohydrates and searching for the products which arise, so to speak, at the seat of their formation has also been tried. But Drs. Levene and Meyer[1] of the Rockefeller Institute for Medical Research in New York have successfully employed a still different plan, that of studying the direct effect of tissue extracts or isolated tissues themselves on carbohydrates. Some time ago they demonstrated in this way that hexoses (such as glucose) can be dissociated by the action of leukocytes on them and in this manner converted into lactic acid. Much interest has centered in this evidence. Lactic acid has long been suspected to be an intermediate product in the metabolic transformations of carbohydrates. It is rapidly formed by the cleavage of the glucose molecule, and readily by the action of bacteria. Some French writers, notably Lépine,[2] have been inclined to attribute to leukocytes the function of sugar decomposition in the living organism. But Levene and Meyer have now shown further that the same conversion of various simple sugars—glucose, mannose, fructose—into lactic acid can be accomplished by different isolated tissues under aseptic conditions. All three of the hexoses enumerated yield the same lactic acid. These excellent researches make it more than probable, therefore, that this mechanism of lactic acid formation is identical in all tissues. They mark a long step toward a more intimate understanding of how the cells act.

RECENT WORK ON RABIES

Within a short time several articles giving important results of investigations on rabies have been published in this country. Brief reference may be made to some of these results, particularly those that bear on two great problems of rabies, namely, the nature and cultivation of its virus and the curative treatment of the active disease.

Heretofore investigators have availed themselves of the brain and spinal cord as sources of the rabic virus for various purposes; very little has been done with the virus as it exists in the salivary glands. Poor and Steinhardt[3] have succeeded in securing from the salivary glands of infected dogs virus free from the cells of the host and from contaminating organisms. They have made use of two methods for this purpose: (1) extraction of the glands with glycerin, and (2) subjection of the glands in distilled water to a vacuum of 29 inches of mercury for an hour, the fluid thus obtained, to which is added the juice pressed out of the aspirated glands, containing the virus after filtration through Berkefeld filters. No differences have been found between this virus, which is in what we may call a pure state, and the virus in the brain and spinal cord.[4] Microscopically the salivary virus as obtained by extraction or aspiration shows no definite, formed elements, only small granules, and the question of the Negri bodies and their relation to the virus confronts us. Poor and Steinhardt suggest

---

1. Levene, P. A., and Meyer, G. M.: The Action of Tissues on Hexoses, Jour. Biol. Chem., 1913, xv, 65.
2. Lépine, R.: Le diabète sucré, Paris, 1909.
3. Poor and Steinhardt: Jour. Infect. Dis., 1913, xii, 202.
4. Poor and Steinhardt: Jour. Infect. Dis., 1913, xiii, 203.

that possibly the chromatin elements in the Negri bodies represent the virus, the other parts being possibly products of reaction on part of the nervous tissue. As yet no announcement has been made of the successful cultivation of the salivary virus, which would seem to be a promising material for experiments. The survival of the virus in glycerin does not signify that it necessarily is of protozoan nature because, contrary to current statements, Poor and Steinhardt find that bacteria such as the diphtheria bacillus and the tubercle bacillus also survive glycerin treatment.

Noguchi,[3] Moon[4] and Williams[5] report the results of experiments in cultivating the virus of rabies as obtained from the nervous system. Noguchi announces that he has succeeded in growing various forms of virus which appears in the cultures as granular and pleomorphic chromatoid bodies, some of which are surrounded with membranes, and that he has reproduced the disease by inoculating animals with cultures. Williams raises the point whether the successful inoculation of animals may not have been due to the presence of the original material rather than to the results of active growth of a specific organism. No doubt this point will be settled definitely before long. Williams and Moon describe experiments in growing the organism of rabies outside the body in brain-tissue under various conditions, and both succeeded in producing rabies in animals with fourth or fifth generation or transfer of such cultures. Both investigators are inclined to believe that growth took place. The indications, then, are that before long the artificial propagation of the virus of rabies will have been accomplished satisfactorily. When that is done the relation of the Negri bodies to the disease and their nature as well as the nature of the organism itself and its relation to the seemingly invisible virus in Poor and Steinhardt's cell-free and bacteria-free salivary products undoubtedly will be made clear.[6]

While such fine progress is being made toward the solution of the problems of the nature and cultivation of the cause of rabies, the hope of finding a specific remedy for the disease naturally awakens. Perhaps a remedy already has been found! A short time ago Moon[7] reported that quinin sulphate by way of the stomach cured the active disease in inoculated dogs. And now Harris,[8] who has done important work on the use of frozen and dried virus in the preventive treatment of rabies, reports the recovery of a patient with rabies after injections of quinin. Unfortunately, the case is complicated with symptoms of alcoholic delirium, and at all events further trials are necessary to determine the value of quinin in rabies. The hopelessness of the prognosis of rabies warrants unreserved, thorough trial of quinin as promptly as possible. Cases of the disease occur every now and then in various parts of the country, and a long time should not elapse before we can learn whether or not the disease is amenable to quinin. Further and extended experimental work is indicated because the question may arise whether or not quinin given during the incubation period will prevent the disease. Just now the outlook in regard to rabies seems altogether hopeful.

SUGAR COMBUSTION IN PANCREATIC DIABETES

We have of late repeatedly referred to the problems of sugar metabolism in diabetes, because in ultimate analysis the rational therapy of this disease must be based on an exact knowledge of the reason for the waste of unused carbohydrate. The two prominent views at present entertained by students of the subject are quite at variance with each other. In so far as they apply to the type of diabetes supposedly involving a disturbed pancreatic function, both theories admit that the metabolic upset may be conditioned by the loss of some internal secretion of the pancreas. They differ in assuming in the one case that the combustion of carbohydrates fails completely when the pancreas is out of commission, and in the other that the capacity to burn sugars is by no means lost, but that there is rather an overproduction or excessive mobilization of carbohydrate which leads to hyperglycemia and subsequent glycosuria.

When Knowlton and Starling[1] succeeded last year in showing that the perfused isolated hearts of animals are no longer capable of using sugar in the normal manner after the pancreas has been extirpated from the subjects and they have become diabetic, it seemed as if a clear-cut answer to the debated question had at length been arrived at. Here was a striking demonstration of the inability of the muscle of the diabetic to burn sugar in the way that the normal heart muscle can. Furthermore it appeared to be possible to restore in some degree the metabolic power of the muscle toward carbohydrates by resorting to the addition of suitable extracts of pancreatic tissue (presumably containing the hypothetic pancreatic "hormone") to the heart-perfusion fluids.

The critics have not been content with this solution of the controversy. Even assuming that the diabetic heart has lost its capacity for utilizing carbohydrate, it does not necessarily follow, they properly remind us, that the entire diabetic organism behaves in the same defective way. Perhaps other organs of the body, like the liver, can still manage to use carbohydrate freely, as von Noorden[2] and his followers have lately taught. It became desirable, therefore, to investigate the metabolism of carbohydrate on the entire intact animal as well as on an isolated organ.

---

[3] Noguchi: Jour. Exper. Med., 1913, xvii, 29.

[4] Moon: Jour. Infect. Dis., 1913, xiii, 232.

[5] Williams, Anna Wessels: Cultivation of the Rabies Organism, p. 1509, this issue.

[6] Concerning other work on the organism of rabies than that discussed here, see the letter by Paul Bartholow, p. 1555, this issue.

[7] Moon: Jour. Infect. Dis., 1913, xiii, 165.

[8] Harris, D. L.: A Clinical Report of Seven Cases of Hydrophobia, p. 1511, this issue.

[1] Knowlton, F. P., and Starling, E. H.: Jour. Physiol., 1912, xlv, 146.

[2] Von Noorden, C.: Die Zuckerkrankheit, ed. 6, 1912, p. 162.

The administration of sugar to an animal is speedily followed by the preferential combustion of carbohydrate and manifests itself in a characteristic "respiratory quotient" or relation of carbon dioxid produced to oxygen absorbed. Unusual muscular activity must be excluded or taken into account, since this of itself may affect the quotient. Appropriate experiments can be carried out only in specially equipped nutrition laboratories; but the result—the fact of a high respiratory quotient after carbohydrate utilization—is readily interpreted by any one. The crucial experiments on the question here at issue have been conducted by Dr. Verzár and von Fejér[3] in Tangl's laboratory at Budapest. Their conclusion is clear-cut. When sugar is injected into depancreatized and therefore diabetic dogs the expected rise in the respiratory quotient indicative of carbohydrate combustion does not manifest itself. This is true, however, only when the diabetic condition has definitely established itself. Evidence of some unimpaired power of utilizing the sugar may still be obtained in the first few days after removal of the pancreas, but not at a subsequent period.

More recently Drs. Murlin and Kramer[4] of the Cornell University Medical School in New York City have confirmed the fundamental fact of the loss of ability to burn sugar in the case of depancreatized dogs. Neither extract of pancreas alone nor the double extract of pancreas and duodenal mucosa nor the transfusion of normal blood produced, within the time of maximal effect on the glycosuria, any effect on the respiratory quotient which could be interpreted as an index of increased combustion of carbohydrate.

It matters not that the Hungarian physiologists were unable to restore the metabolic efficiency of their depancreatized animals by *transfusion of normal blood from* healthy subjects or by infusion of various sorts of pancreatic extracts. The experiments tend definitely to confirm the important earlier conclusions of Knowlton and Starling,[5] and support the view that sugar is no longer satisfactorily used under the circumstances that obtain in such diabetic subjects.

THE RELATION OF THE LIVER TO DIFFERENT SUGARS

In recent years varied attempts have been made to apply the results of sugar feeding in the functional diagnosis of liver disease. In principle the process consists in administering a relatively large dose of some simple soluble carbohydrate such as glucose, levulose or galactose at one time and ascertaining by examination of the urine to what degree the sugar has been retained in the organism and presumably utilized. Trials of this sort on both man and animals have shown that the "assimilation limit" is reached with much smaller doses in the case of galactose than with the other sugars mentioned; and further, levulose is less readily utilized than glucose, the physiologic sugar. The practice here outlined rests on the theoretic assumption that these carbohydrates all are metabolized, either by conversion to glycogen or otherwise, in the liver, the organ to which they are immediately conducted when they leave the alimentary tract. Defective liver function should accordingly reveal itself by a limited capacity to utilize carbohydrates when they are furnished in great abundance at one time.

On the whole, the experience with these "functional tests" has been rather disappointing. Perhaps this can be in part explained by recent observations made in the medical clinic at Heidelberg.[1] The participation of the liver in nutritive functions can in good measure be excluded by surgical intervention in the form of the well-known Eck fistula, whereby the portal circulation is side-tracked from this organ and diverted directly into the general venous circulation of the vena cava. When this is done there is, according to Draudt,[1] no noteworthy difference in the utilization of glucose and levulose as compared with that in normal animals. The assimilation of lactose and galactose, on the other hand, tends to be markedly diminished. It seems logical to assume, in the absence of further evidence, that the liver occupies a place of special prominence in the utilization of the latter sugars. They need to be chemically "rearranged" before they can be converted into the typical storage carbohydrate glycogen; and apparently the liver retains the capacity for such more intricate chemical transformations in greater degree than do the other tissues. It follows *therefore that galactosuria may be in large measure* dependent on the extent to which the participation of the liver in metabolism is excluded and that this symptom may be taken as a measure of the diversion of the portal blood from its usual channels. Corresponding with these findings it has been noted that the sugar content of the blood of animals bearing an Eck fistula is increased when lactose or glucose is administered to them, though normally they show no tendency toward hyperglycemia. It is not unlikely, therefore, that renewed attention to the behavior of galactose in the organism under various conditions will repay those who are interested in functional tests of the sort described.

THE RIPENING OF FRUITS

The place which fruits are assuming in the dietary of man is one of growing importance. Certain species, like the apple and pear, the plum and the grape, have long enjoyed a deserved popularity; others which were once among the rarities in the United States are now finding wide-spread favor. This applies in particular to some of the forms of melons and to the fruits which are usually shipped by water from the tropical regions where they are grown to the centers of distribution. Bananas, which were found only in a few seaboard towns a generation ago, are now common in every region of America. In Great Britain, where they were little known less than two decades ago, they have now almost become the "poor man's fruit."

---

[3] Verzár, F., and von Fejér, A.: Die Verbrennung von Traubenzucker im Pancreasdiabetes, Biochem. Ztschr., 1913, liii, 140.

[4] Murlin, J. R and Kramer, B.: The Influence of Pancreatic and Duodenal Extracts on the Glycosuria and the Respiratory Metabolism of Depancreatized Dogs, Jour. Biol. Chem., 1913, xv, 365.

[5] Criticisms offered by Macleod and Pearce of Western Reserve University (Centralbl. f. Physiol., xxvi, No. 26) have been taken into consideration by Verzár and von Fejér.

[1] Draudt, L : Ueber die Verwertung von Laktose und Galaktose nach partieller Leberausschaltung (Ecksche Fistel), Arch. Exper. Pathol. u. Pharmakol., 1913., lxxii, 457.

The ripening of fruits plays so important a part in their availability and in some of the problems of transportation that authentic information on this subject is much to be desired. Some fruits, like the apple, may be allowed to ripen almost fully on the tree and may be kept in the ripened condition for relatively long periods if proper attention is paid to their manipulation and storage. Other fruits, like the berries, cannot be kept in the ripe condition very long before deterioration and decay set in. In still other cases, as with the banana, the fruit may be picked and transported advantageously before the final ripening has begun; and this process can then be controlled in the market and home as the conditions demand.

The physical changes, like the variation in color of ripening fruits, are familiar, since they are evident to the senses; but these alterations are merely indicative of changes in the chemical make-up of the fruits under the conditions which determine ripening. Heat, moisture, air and light may all participate in determining the characteristic changes that ensue. Laboratory investigations in recent years[1] have given clearer indications of what takes place. Among the reactions easier to follow are the transformation of starch into sugar, the conversion of soluble tannin compounds with their astringent properties into insoluble forms, the actual lessening of the quantity of acid, or the masking of the acid flavor by the accumulation of sugar, the softening of woody tissue, and the increase and storage of water (juice). The formation of compounds, such as volatile ethers, organic oils, etc., responsible for special flavor and aroma is not so easy to follow.

One reason why ripening processes can so often proceed advantageously after removal of the fruit from its parent plant lies in the fact that many of the physical and chemical changes noted are carried out by unorganized ferments or enzymes. These are readily influenced by temperature, etc.; hence the importance of the latter in varying the speed at which the ripening proceeds. This may even continue so long as to carry the change to an undesirable point known as after-ripening, which is not ideal from the point of view of the consumer. During the ripening the fruits also undergo a sort of respiration in which oxygen is consumed and carbon dioxid produced. In this process part of the carbohydrate is oxidized and heat is generated.

With the growing knowledge of what the ripening of fruits really involves we are certain to acquire better criteria of what a properly ripened product should really be. The fact that unripened (winter) apples are unfit for consumption in the early fall because instead of sugar they have a large content of raw starch and other objectionable ingredients which disappear with the "mellowing" process, will be understood in a more intelligent way than has usually been the case. Furthermore, the facilitation or other regulation of the natural processes of ripening by artificial means will make it possible to dispel the limitations hitherto placed by seasons or distance. The beginnings are already apparent in the practices of modern commerce.

TEMPERATURE AND HUMIDITY IN HOSPITALS

Americans are inclined to pride themselves on the ingenuity they exhibit in the construction of public buildings and on the novelty and up-to-date character of the devices introduced. Plumbing and heating systems, elevators and telephones, lighting and cooking devices are pointed out in exemplification of the newest that the mechanic arts and skilful labor can provide. In our emphasis of the mechanism we are all too prone to overlook the man; for it is on the human brain that the successful working of all these varied arrangements ultimately depends. The only completely satisfactory automaton is the human individual.

These reflections are prompted by observations which Miss Lake has recorded in regard to the temperature and humidity in six New York hospitals.[1] There, if anywhere, one would expect the hygiene of heating and ventilation to be mastered in the highest degree. Yet the statistics gathered show that the control of temperature is more a question of management than of the system employed. In two hospitals, one with window ventilation and the other with a plenum system, a uniform temperature was regularly maintained despite the difference in the systems employed. Other institutions showed wide variations in temperature. One hospital was "consistently overheated"; for certainly we are not inclined to regard temperatures between 75 and 80 F. as desirable. Miss Lake points out the high temperatures in the children's wards and operating-rooms of almost all the hospitals investigated. In the case of the places for operation the reason is forthcoming; but whether temperatures between 70 and 80 should be maintained in children's wards is debatable. Certainly it is questionable whether a ward with a day record of 76 F. should be allowed to cool to 57 at night unless special precautions are taken for the protection of children who persist in sleeping uncovered. As a commentary on the wisdom of management in the placing and regulating of thermostats it may be noted that an operating-room with a temperature of 88 F. registered 98 F. on the thermostat placed against a wall back of which were the steam-pipes of a sterilizer in an adjoining room.

---

[1] Langworthy, C. F., and Milner, R. D.: Some Results Obtained in Studying Ripening Bananas with the Respiration Calorimeter, Yearbook, U. S. Dept. Agric., 1912, p. 293.

[1] Lake, Alice L.: Temperature and Humidity in Certain New York Hospitals, Jour. Home Economics, 1913, v, 301.

Low humidity is a rule in hospitals and strikingly so in the operating-rooms. Of the seventy-five records taken by Miss Lake, sixty-seven were between 20 and 45 per cent. relative humidity. This is, of course, due to the high temperatures; for the outside humidity reaches far higher figures. It matters not whether this more humid outside air is brought in through windows and ducts or not; for the warming of the air to the high room-temperatures has a drying effect. Whether or not it is advantageous for patients in an operating-room or in the wards to be subjected to dry heat may be debatable. The only suitable way to alter the situation is to provide artificial humidification. As for the perversions of temperature and humidity, they appear to depend on the inefficiency of the man in charge rather than the system installed.

THE URINE IN NORMAL PREGNANCY

The important research by Murlin and Bailey[1] on the protein metabolism of normal pregnancy should serve to dispel some of the illusions current in regard to supposed perversions of nutrition frequently connected with the late period of gestation. Much attention has been centered in the past on the ammonia output in the urine of pregnant women. Inasmuch as high ammonia output, when correctly interpreted in relation to other findings, may indicate the existence of abnormal metabolic conditions, it is, to say the least, essential to have reliable statistics as to what is to be considered the normal and what constitutes a deviation therefrom. It happens that for the most part the data for the output of ammonia nitrogen in the urine have in the past been expressed in percentages of the total nitrogen excretion. This mode of presenting results of urinary analysis has obvious shortcomings: for if, as is commonly true, the absolute ammonia output remains fairly constant from day to day, the percentage output will nevertheless vary widely whenever the total nitrogen metabolism varies. For example, assuming the daily ammonia nitrogen excretion to be constant at 0.5 gm., the percentage output will be quite different under conditions in which the day's urine contains 5 or 15 gm., respectively, of nitrogen. Low excretion of nitrogen raises the percentage of ammonia output. The chemist appreciates these points well enough; but the clinician taught to respect the percentage figures and to see a menace to his patient when they are unduly high too often fails to realize that 10 or 12 per cent. of ammonia nitrogen may merely mean that the subject has eaten less, or stored more protein and therefore excreted less nitrogen waste.

Murlin and Bailey have found that in a perfectly normal pregnancy and puerperium the percentage of ammonia nitrogen in the urine before and after labor shows but slight differences and lies within normal limits (from 4 to 6 per cent.) except for one or two days following normal delivery, when it is slightly increased (from 7 to 10 per cent.). The ammonia nitrogen in perfectly normal pregnancies, in which the retention of nitrogen is large and the total nitrogen in the urine consequently small, may range as high as 12 per cent. of the total and be unaccompanied by any unfavorable symptoms. Immediately after severe catharsis it may reach the height of 17 per cent. because of the diminished absorption of nitrogenous food from the alimentary tract and consequently diminished excretion of total nitrogen. But the absolute amount varies only slightly from day to day and previous to delivery never exceeded 0.88 gm. in urine known to be uncontaminated. From this the Cornell investigators are inclined to look on any amount up to 0.012 gm. ammonia nitrogen per kilogram of body-weight in the twenty-four-hour urine as well within normal limits. It further appears that some of the instances of high ammonia output hitherto reported were in fact due to contamination of the bladder whereby ammonia arose in the urine itself as the result of microbial changes. In such cases irrigation of the bladder twice a day with a saturated solution of boric acid caused prompt reduction in the ammonia figures, the food and total nitrogen remaining the same.

So much has been asserted in the past regarding supposed deviations from the normal in this period, so much emphasis has been placed on the dangers prognosticated by a high ammonia percentage, that it is a satisfaction to learn the conclusion reached by Murlin and Bailey. In general, they believe that peculiarities in the composition of the urine of normal pregnancy as regards its nitrogenous constituents may be accounted for on purely physiologic grounds.

Current Comment

CLEAN HANDS

The assertion is sometimes made that it is alone the "filthy habits" of the typhoid carrier that make him a public danger. If he could be made to wash his hands, it is alleged, transference of infection would be prevented. Those who regard bacterial cleanliness as simply a matter of careful hand-washing are likely to obtain disappointing results if a recent experiment performed by Cummins[1] is at all indicative of what may occur under ordinary conditions of life. This observer, after dipping the right index-finger in the urine (proved to contain upward of 3,000 million typhoid bacilli per cubic centimeter) of a typhoid carrier, proceeded to carry out measures of cleansing as follows:

1. Rinsed in liquor cresolis compositus solution (approximately 2 per cent.). 2. Then held the finger under the tap, rinsing first in cold, then in very hot water (temperature not

---

[1] Murlin, J. R., and Bailey, H. C. Further Observations on the Protein Metabolism of Normal Pregnancy, Arch. Int Med., September, 1913, p. 288.

[1] Cummins: Jour. Roy. Army Med. Corps, 1913, xx, 657.

recorded). 3. Washed very carefully in about 0.5 c.c. of sterile water in a watch-glass, and plated the whole of the water used for this purpose. Result: Three hundred and thirteen colonies of *Bacillus typhosus* on the plate. 4. After the washing in sterile water mentioned, the tip of the finger was thoroughly soaked in absolute alcohol, allowed to dry, and the washing in sterile water repeated. The "washings" were again "plated." Result: Four colonies of *B. typhosus.*

Even when the fingers are thoroughly rubbed with a towel and the danger of finger infection thereby lessened, it is obvious that the towel in its turn may become infected. The sort of accident that may follow from such conditions is illustrated by another observation of the same author:

> On Sept. 26, 1912, 100 c.c. of soup freshly prepared from the "stock pot" was placed in a china bowl, no attempt being made to sterilize the bowl or to cover it from the air. The tip of the experimenter's right index-finger was allowed to come in contact with the urine of Carrier A (proved by plating to contain upward of 3,000 million of the *B. typhosus* per cubic centimeter). The china bowl was then lifted in such a manner that the infected finger came in contact for a moment with the contained soup. The soup was left at room temperature with free access of air and dust to the open bowl. On September 27, enumerated the bacterial contents of the "soup." Result: *B. typhosus* was present apparently in pure culture, numbering 15,500 per cubic centimeter.

Such facts as these add strength to the agitation for better supervision over the conditions of those persons engaged in serving and preparing food for large numbers of people. The action of the Pennsylvania Railroad in providing for the systematic inspection of all of its employees in the restaurant and dining-car systems has already been noted.[2] This example should be followed by the management of other organizations engaged in the handling and serving of food on a large scale. Social clubs and similar bodies, as pointed out by a correspondent recently,[3] are often lax in this regard. The supervision of cooks and waiters in dining-cars, hotels, restaurants and clubs is certainly a matter that deserves more attention than it has yet received. "Defective plumbing" is far less important.

POSTGRADUATE MEDICAL EDUCATION IN THE UNITED STATES

Last week there appeared the announcement[4] of some postgraduate courses to be offered under a joint arrangement by several educational and research institutions in New York City. It is not the mere fact that more postgraduate courses are being offered that deserves comment, but that several institutions having such courses to offer have seen fit to unite in having those courses given under a single control to the mutual advantage of both teacher and learner. It would eventually be to the advantage of all concerned if all the various postgraduate courses now being offered in our medical centers could be brought under a centralized control. As the courses are given at present, the graduate student has much difficulty in finding out from the multiplicity of agencies just what courses are available; he perhaps spends still more time in locating the courses desired and then often finds to his disappointment that several of the courses he has selected conflict so seriously that he cannot take them without spending much more time than he feels he can spare from his practice. Under the centralized administration there would be one place where the student could secure full information regarding all courses offered; one circular could be issued describing all courses; the courses could be so arranged as to avoid conflicts between related courses; the present confusion and conflict would give way to system and order; much duplication of expense could be avoided, and—most important—a greater number of physicians would be attracted to the courses. There is probably as great an abundance of clinical material in several of the large cities in this country as is to be found in the continental cities of Europe, and doubtless some of the courses offered are as excellent or even superior. The great need, however, in each of our large cities is for the centralized control which is essential for the best development of those courses. Harvard, with its new Graduate School of Medicine, has made an excellent start by forming a close affiliation with many of the hospitals of Boston. And now several institutions of New York are giving these postgraduate courses under a unified administration. This will surely render the courses more attractive and valuable to physicians, and a greater number of physicians will take the work to the mutual benefit of themselves and of their patients.

THE MECHANISM OF VOMITING

Vomiting is regarded by many merely as a sort of antiperistalsis of the stomach and esophagus. There is evidence, however, that phenomena characteristic of emesis can follow even after removal of the entire gastro-intestinal tract, when emetic substances like the digitalis compounds are administered intravenously.[1] The part played by the digestive tube in the act of vomiting has been further elucidated by roentgenologic observations on the movements of the alimentary tract after administration of apomorphin.[2] In dogs the process of vomiting exhibits three distinct phases: First, the pyloric portion of the stomach contracts and fills the relaxed fundus with contents; then, as the cardia opens, food materials are projected through it into the esophagus by the contractions of the diaphragm and the abdominal muscles; finally, after varying intervals of rest, the esophageal contents are forced to the exterior by expiratory movements. During their sojourn in the esophagus the food particles are propelled up and down therein by the characteristic respiratory activities. The cardiac sphincter frequently remains open and the gullet is relaxed. It should be emphasized that at no time was antiperistalsis of the stomach or esophagus observed in Hesse's experience. The act of vomiting is not always a completed process; frequently the gastric contents are moved into the esophagus but not conveyed to the exterior. Even when typical emesis occurs, the gullet is rarely emptied entirely. The residual débris glides back to the cardia, where it may remain for some time and finally be returned to the stomach itself. Thus the evidence is accumulating to show the participation of nonalimentary muscles in the act of vomiting; and in place of the supposed dominant importance of purely local stimuli in the gastro-intestinal canal the significance of the vomiting center in the medulla, from which large groups of contributing factors can be controlled through nervous channels, is assuming a conspicuous place.

---

[2] Thrush, M. Clayton: The Value of Sanitation as Applied to Railway and Other Large Corporations, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1286.

[3] Healthy Employees in Kitchen and Dining-Room, Correspondence, THE JOURNAL A. M. A., May 10, 1913, p. 1479.

[4] Postgraduate Work in Medical Science, THE JOURNAL A. M. A., Oct. 18, 1913, p. 1479.

[1] Cf. Eggleston, C. and Hatcher, R. A.: The Emetic Action of the Digitalis Bodies, Jour. Pharmacol. and Exper. Therap., November, 1912; THE JOURNAL A. M. A., Feb. 15, 1913, p. 499. Eggleston, C.: Clinical Observations on the Emetic Action of Digitalis, THE JOURNAL A. M. A., Sept. 6, 1913, p. 757.

[2] Hesse, O.: Zur Kenntnis des Brechaktes, Arch. ges. Physiol (Pflüger's), 1913, cliii, 1.

THE NARCOTIC ACTION OF MAGNESIUM SALTS

The now widely familiar method of inducing narcosis by the subcutaneous injection of magnesium sulphate (Epsom salt), introduced some years ago by Meltzer and Auer, is capable of producing a profound depression of the animal organism. If the proper dosage is employed all reflexes and signs of sensibility are lost for a time, while respiration remains intact. It has been urged against the procedure as an anesthetic device that the magnesium salts merely paralyze, and that sensation is by no means lost. Indeed, the action has been compared directly with that of the classic poison curare, in its familiar manifestation of paralyzing the motor-nerve endings. Meltzer and Auer[1] have now brought new evidence that magnesium salts affect also the central nervous system. They have found that when experimental animals receive one-half or less of the effective narcotic dose of magnesium sulphate they are readily narcotized deeply by inhalation of small doses of ether which are of themselves insufficient to narcotize normal animals. If the magnesium had only a peripheral effect, which is asserted by those who hold that it merely paralyzes the motor-nerve endings, it is highly unlikely that there could have been a summation such as just described with the subminimum central effect of the ether. In the absence of more compelling evidence, therefore, the condition of depression induced by magnesium may still be regarded as one of anesthesia in which there is an inhibition of the entire nervous system, not alone its peripheral branches.

A CLEAN RECORD IN THE CANAL ZONE

Those who have been following the remarkable record of the work of sanitation of the Isthmian canal, and have watched the gradual reduction of the death-rate and the elimination of preventable disease, have hoped that before the monumental work of constructing the canal was finished it might be possible for Colonel Gorgas to present a report that would be clean as far as death from disease was concerned. The report of the Department of Sanitation for the month of August, 1913, just received, shows that during that month there were thirty-nine deaths from all causes among the employees of the canal commissioners. Of these, one, a Peruvian, died of malaria; another, a Spaniard, of alcoholism, and the third, a Greek, of appendicitis. The only deaths among white Americans which occurred during the month were two from violence, one due to an accident on the railway and the other to an accident in the quarry. Among the 12,481 white American men, women and children on the Isthmus connected with the commission—that is, employees and their families—not a single death from disease occurred. The exodus from the Canal Zone has already begun; those employees whose work has been completed are returning to the United States with their families. The number of the American citizens resident in the Canal Zone will probably decrease steadily in the future. It is a fitting climax to the work of Colonel Gorgas, which has challenged the admiration of the civilized world, that the month which probably marks the high tide of American occupancy of the Canal Zone should have passed without a single death from disease in the American colony.

ACIDOSIS IN METHYL ALCOHOL INTOXICATION

In various discussions of the toxicity of methyl alcohol which have been conducted in THE JOURNAL[1] since the now celebrated series of fifty-seven fatal cases of poisoning among the inmates of a home for the poor in Berlin early in 1912, it has been pointed out that inasmuch as the compound is in part oxidized to formic acid in the body this oxidation product may be an immediate cause of the toxic symptoms. It has been maintained that the salts of formic acid are not particularly poisonous to the organism. If, however, we assume that formic acid is liberated as a free acid which is not readily further oxidized, it is quite conceivable that it may give rise to symptoms of acid poisoning precisely like some other organic acids, notably beta-oxybutyric acid. One feature of the harmful effects of methyl alcohol ingestion, on this hypothesis, would be the acidosis developed by its oxidation product. Normally such organic acids formed in disturbed intermediary metabolism are neutralized by ammonia in the body so as to spare the store of fixed alkalies which are present. A high output of ammonia in the urine is accordingly an index of a condition of acidosis. The theory here evolved and originally suggested in the case of methyl alcohol intoxication by Schmiedeberg has been put to a test in his laboratory by Król.[2] His experiments show clearly that the administration of methyl alcohol to animals is in fact attended with a pronounced increase in the output of ammonia in the urine. The existence of the suspected acidosis would therefore seem to be established. It by no means follows that this is of itself sufficient to account for all the characteristic symptoms of methyl alcohol intoxication. Król noted that the amount of formic acid actually excreted by his experimental animals was too small to account for all of the ammonia simultaneously present in the urine. Other acids must also arise. In any event, however, the now clearly demonstrated acidosis is a factor which deserves to be taken into account in a consideration of the phenomena of poisoning with wood alcohol.

---

[1] Meltzer, S. J., and Auer, J.: Combined Action of Magnesium and Ether; Evidence of a Central Effect of Magnesium; Proc. Soc. Exper. Biol. and Med., 1913, x, 159.

---

[1] Methyl Alcohol as a Poison, THE JOURNAL A. M. A., Nov. 30, 1912, p. 1974; The Case of Methyl Alcohol, Dec. 7, 1912, p. 2075; Methyl Alcohol and Wood Alcohol—Poison, April 19, 1913, p. 1231; Methyl Alcohol and the Blood, THE JOURNAL A. M. A., May 10, 1913, p. 1466.

[2] Król, J.: Ueber das Wesen der Methylalkoholvergiftung, Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 444.

Medical News

DISTRICT OF COLUMBIA

New Officers.—Washington Obstetrical and Gynecological Society, October 10: president, Dr. J. F. Moran; secretary, Dr. Truman Abbe.

Hospital Building Dedicated.—The Woman's Missionary Society of the Methodist Episcopal Church, in session in Washington, October 19, dedicated Robinson Hall, a structure erected at a cost of $150,000, and dedicated by the society to Sibley Hospital.

Physician Invents Aeroplane.—Dr. Henry L. E. Johnson, Washington, has obtained a patent on a constructive principle of an inverted arch for an aeroplane, which is designed to add to the safety of the machine particularly in descent, and to lower the center of gravity.

Woman's Clinic Opened.—A woman's clinic with the object of preventing as well as curing disease, has been opened at 716 Thirteenth Street, Washington. The clinic is open from 5 to 7 p. m., and two days in the week are devoted to children. The chairman of the medical committee is Dr. Elnora Folkmar.

ILLINOIS

Child Welfare Exhibition in Peoria.—Peoria is to have a child welfare exhibition in its coliseum from October 27 to November 4. Dr. Clifford U. Collins is chairman of the executive committee.

New Officers.—Tazewell County Medical Society at Pekin, October 14: president, Dr. G. W. Foekler, and secretary-treasurer, Dr. E. F. Kelchner, both of Delavan.——McDonough County Medical Society at Bushnell, October 7: president, Dr. W. W. Hendricks, Bardolph: secretary-treasurer, Dr. C. J. Rider, Bushnell.

Correction.—The secretary of the Illinois State Association for the Prevention of Tuberculosis requests that a correction be made in the news item in THE JOURNAL of October 14, in which it was announced that Dr. William A. Evans was elected president of the association. Dr. Evans withdrew his name from nomination, and Dr. George T. Palmer, Springfield, Ill., was elected president.

Illinois Conference of Charities.—The Illinois Conference of Charities held its annual meeting in Rockford, and elected the following physicians as officers and committeemen: first vice-president, Dr. George T. Palmer, Springfield; committee of service, Drs. George T. Palmer, Springfield, and John Bartlett, Galesburg; eugenics, Drs. William L. Healy, Anna Dwyer and Charles P. Caldwell, Chicago; W. H. C. Smith, Godfrey, and Edith B. Lowry, Chicago; medical social work, Drs. Adam Szwajkart, Chicago, and A. J. Brislen, Chicago; committee on exhibits and publicity, Dr. H. A. Pattison, Rockford.

Personal.—Dr. H. N. Bascom, Peoria, chief surgeon of the McKinley system, entertained the surgeons of the McKinley system at dinner at the Creve Coeur Club, October 15.——Dr. J. M. Kaiser, Somonauk, is confined to his home by reason of a cerebral hemorrhage——Dr. C. A. Wilcox, Amboy, is making satisfactory recovery from his recent operation in the Dixon Hospital.——Work has been commenced on a new solarium for Dr. P. E. N. Greeley, Waterman. The solarium will have twelve sun or outdoor sleeping-rooms.——Dr. E. P. Hatheway, Ottawa, is ill in the hospital with an infected wound of the arm.——Dr. J. Mather Pfeiffenberger, Alton, has returned from Europe.

Chicago

Personal.—Dr. Eugene S. Talbot and daughter, Dr. and Mrs. Herman L. Kretschmer and Dr. B. Barker Beason have returned from abroad.

Dinner to Interns.—The Chicago Medical Woman's Club gave its annual dinner to the woman interns in Chicago hospitals, October 18. Dr. Frank Billings was the guest of honor.

Special Meeting of Gynecological Society.—The Chicago Gynecological Society announces a special meeting to be held November 15, in the Florentine Room of the Congress Hotel. At this meeting Professors Krönig and Gauss will be the guests of honor, and papers will be read by Drs. Robert L. Dickinson, Brooklyn, and Thomas S. Cullen, Baltimore.

Hospital News.—The new West Side Hospital building at Lincoln and Harrison Streets was formally opened October 17. The building has cost $200,000, and has accommodation for 170 patients.——A five-story building, to cost about $100,000, is being erected at Washington Boulevard and North Campbell Avenue by the Washington Boulevard Hospital Association, which at present maintains the Monroe Street Hospital.

Recommendations Regarding Criminal Puinishment.—At the meeting of the Chicago Medical Society, October 14, the committee on criminal punishment made the following recommendations, and the report was adopted by the society:

> "The separation at all times of misdemeanants and felons.
>
> "That every aid be given the state's attorney's office and the judges to hasten grand jury hearings and final trials.
>
> "That every effort be made to encourage the extension of the reformatory idea to criminals of every class, excepting the incorrigible habitual criminal and those guilty of capital crimes, and that these latter be sentenced to 'state schools,' rather than to 'state prison.'
>
> "That a sentencing board or commission be appointed by the governor for the three state districts, to consist of seven members, who shall classify all criminals in the state, their family, physical, mental, and criminal history.
>
> "To encourage the women of Illinois to take better care and extend moral and material support to the women who have served sentences in penal institutions of the state, and thus preserve them from a life of vice or crime."

INDIANA

Sanitarium Incorporated.—The Dr. Stackhouse Sanitarium, Crawfordsville, has been incorporated with a capital stock of $20,000.

Hospital Contract Awarded.—The building committee of the Methodist Hospital, Indianapolis, have awarded a contract for the new pavilion, which will cost about $50,000 and will increase the capacity of the hospital to 285 beds.

Physicians Win Law Suit.—In the case of David Linn, Nappanee, versus Drs. Price and Price, Nappanee, in which $10,000 damages was claimed on account of alleged malpractice, a jury in the Superior Court at Elkhart, October 4, decided in favor of the defendants.

Antituberculosis Society Secretaries Organize.—An organization was perfected in Indianapolis, October 17, by secretaries of city and county antituberculosis societies of the state. W. B. Thurber, Indianapolis, was elected president; Dr. C. W. Hartloff, Evansville, vice-president, and Mrs. E. B. Keaher, Anderson, secretary-treasurer.

Tri-State Association of Colored Physicians.—At the fifth annual session of the Indiana Association of Negro Physicians, held in Indianapolis, October 15 and 16, under the presidency of Dr. A. H. Wilson, Indianapolis, a resolution was adopted that the association combine with like associations of Ohio and Kentucky to form a tri-state organization.

Trachoma Hospital Desired for Bartholomew County.—The State Board of Health has requested that a special hospital be established in Bartholomew County for the treatment of trachoma. In a recent inspection made by Dr. James A. Nydeggar, U.S.P.H.S., of the children in the public schools in Bartholomew County, forty-eight cases of trachoma were discovered.

District Society Meeting.—The thirteenth annual meeting of the Eleventh Councilor District Society was held in Peru, October 16, and the following officers were elected: president, Dr. G. R. Daniels, Marion; vice-presidents, Drs. J. M. Toney, Vanburen; W. A. Domer, Wabash; Claude S. Black, Huntington; P. B. Carter, Macy; G. R. Coffin, Monticello, and C. C. Hickman, Yeoman.

Personal.—Dr. William F. Smith, Vincennes, is reported to be seriously ill.——Dr. Amzi Weaver, Elizabeth, fractured his arm recently while cranking his automobile.——Dr. Henry Jameson, formerly dean of the Indiana Medical College, has been elected president of the Indianapolis Street Railway Company.——Dr. John J. Briggs, Indianapolis, who has been ill with typhoid fever, is reported to be improving.——Dr. Charles R. Crow, Indianapolis, is reported to be seriously ill with neuritis.

Health Board Lacks Funds.—The Board of Health of Indianapolis is in serious difficulty on account of lack of funds. Under a recent law the board fixed the salaries of all its employees. A member of the City Council, having been treated at the City Hospital, introduced a resolution increasing the pay of student nurses in that institution. This resolution was adopted, but the city attorney held that it was illegal, and as the board thought it inadvisable to increase the pay of nurses, the council has held up the appropriation for the Board of Health and has refused to pay expenses incurred during the recent flood. The contagious disease fund having been exhausted on account of large increase in cases of diphtheria, the Board of Health is in a bad financial condition.

MARYLAND

Baltimore

Sanitarium Burned.—The Edgewood Sanitarium was partly destroyed by fire early on the morning of October 14. The dense smoke caused the death of two patients by suffocation. There were ten patients in the institution at the time of the fire. A nurse was severely burned and received other injuries in attempting to rescue the patients who were suffocated.

Dinner to Students.—Dr. Howard A. Kelly gave a dinner to 500 medical students from the various medical colleges in Baltimore on October 17. Governor Goldsborough and prominent clergymen who are interested in the welfare of the many medical students who come to Baltimore each year, delivered addresses.

Semi-Annual Meeting of the Faculty.—The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Hagerstown, October 21 and 22. Dr. Carroll Fox, surgeon, U. S. Public Health Service, made a report on the milk supply in Maryland. A reception was tendered the members by Dr. J. McPherson Scott.

Brady Urological Clinic.—The first step toward the utilization of James Buchanan Brady's gift of $250,000 to Johns Hopkins Hospital for a special urological clinic, under the direction of Dr. Hugh H. Young, has been taken, when the contracts for the construction of the building were awarded. The building will be three stories in height, with a roof garden for convalescent patients. It is expected that the clinic will be completed and ready for the reception of patients in about one year. Mr. Brady's gift provides for an annual gift of $15,000 for maintenance and it is said that he has made substantial provision in his will for the continuance of the work of the clinic.

MICHIGAN

New Officers.—Ottawa County Medical Association at Holland, October 14: president, Dr. A. Brower, Drenthe; secretary-treasurer, Dr. H. J. Poppen, Holland.——Tri-County Medical Society (Lapeer, McComb and St. Clair counties), organized at Richmond: president, Dr. Robert M. Greenshields, Romeo, and secretary, Dr. R. J. Pelton, Armada.

State Board Election.—At the annual meeting of the state board of registration in medicine, held in Lansing, October 15, Dr. G. L. LeFevre, Muskegon, was elected president. Dr. Beverly D. Harison will continue to act as secretary of the board, as after eighty-seven ballots his opponent, Dr. Bret Nottingham, Lansing, had failed to receive the seven votes necessary for his election.

Hospital News.—Three units of the Detroit General Hospital, erected at a cost of about $500,000, are almost completed. These are the service building, the laboratory and the surgical building. Two additional buildings, a children's building and a maternity building, are now in sight.——The superintendent of Grace Hospital, Detroit, has been authorized to proceed with the construction of a new service building to cost $40,000.——The cornerstone of the new St. Joseph's Sanitarium, Ann Arbor, was laid September 21.

Personal.—Dr. R. T. Mason, Detroit, dislocated his right shoulder in a collision between his motor car and another machine recently.——Dr. L. W. Toles has been elected president and Dr. J. Earl McIntyre secretary of the board of control of the Ingham Sanitarium, Lansing.——Dr. S. N. Insley, Grayling, fractured his arm while cranking his automobile, recently.——Dr. Hattie G. Schwendener, St. Joseph, was struck by an interurban car, recently, and seriously injured.——Dr. Jennie Crozier, Grand Rapids, has gone to England, where, after three months' study of tropical medicine, she will return to her post of duty in India.——Dr. C. C. Clancy, Port Huron, has been elected president of the medical section of the National Fraternal Congress.

NEW JERSEY

Memorial Hospital Opened.—The Stumpf Memorial Hospital, Kearny, was formally opened, October 1, and received its first patients October 3.

Personal.—Dr. L. M. Halsey, Williamstown, who has been seriously ill, is reported to be improving.——Dr. Chauncey V. Everitt has resigned from the medical staff of the Jersey City Hospital.——Drs. Edgar A. Ill, Richard Coe and William D. Miningham, all of Newark, have been appointed members of the consulting staff of the Overbrook Insane Hospital.——Dr. E. J. McConaghy, Camden, was seriously injured in an automobile accident, recently.——Dr. Phillip E. Krichbaum, Montclair, fell while entering his automobile recently, fracturing his right arm.

New Officers.—Medical Society of Cape May, at Cape May Court House, October 7: president, Dr. Clarence W. Way, and secretary, Dr. Eugene Way, both of Dennisville.——Morris County Medical Association at the State Hospital, Greystone Park: president, Dr. James B. Griswold, Morristown; secretary, Dr. Henry W. Kice, Wharton.

Experts Formulate Plans for Care of Feeble-Minded.—A conference of experts was held October 10, at the State Institute for Feeble-Minded Women, Vineland, to formulate sane and economical plans for the care of the feeble-minded, and to interest alienists and psychologists in their training as well as in the diagnosis of their cases. Dr. Madelein Hallowell, superintendent of the institution, outlined an economical, human and safe system, by the gathering by the state of all its mental defectives into large institutions conducted on the unit plan, where women and children can mingle and lead some semblance of a normal life, the men being in the same institutions in separate buildings.

NEW YORK

Hospital Fund Campaign Closes.—The eight-day campaign to raise $200,000 for St. Mary's Hospital, Niagara Falls, closed October 9, with a total subscription of $62,805.

Society Reorganized.—Fifteen practitioners of Essex County met at Port Henry recently and reorganized the Essex County Medical Society, electing the following officers: president, Dr. L. G. Barton, Willsboro; vice-president, Dr. C. B. Warner, Port Henry; secretary, Dr. Charles Payne, Westport, and treasurer, Dr. W. T. Sherman, Crown Point.

Instruments Donated to Hospital.—The collection of surgical instruments of the late Dr. Nathan Jacobson of Syracuse has been presented by his widow to St. Joseph's Hospital. Mrs. Jacobson also announced her intention of presenting the library of Dr. Jacobson, consisting of nearly 2,000 volumes, to the library of the College of Medicine of Syracuse University.

New Officers.—Wyoming County Medical Society at Warsaw, October 14: president, Dr. W. J. French, Pike; secretary-treasurer, Dr. L. H. Humphrey, Silver Spring.——Orleans County Medical Association at Medina, October 7: president, Dr. R. W. Bamber, Carleton; secretary-treasurer, Dr. J. F. Eckerson, Shelby.——Genesee County Medical Society at Batavia, October 9: president, Dr. J. B. Miller, Alexander; secretary, Dr. Sophy E. Page, Bethany.——Seneca County Medical Society at Interlaken, October 9: president, Dr. L. A. Gould, Interlaken; secretary, Dr. F. W. Lester, Seneca Falls.——Wayne County Medical Society at Palmyra: president, Dr. E. A. Nevin, Newark; secretary-treasurer, Dr. M. A. Veeder, Lyons.

Renew Tuberculosis Fight.—Joseph H. Choate, president of the State Charities Aid Society, in a recent letter to the members of that organization, urges an energetic campaign for the suppression of tuberculosis. While he sees ground for great satisfaction in the results already achieved, he believes that the number of hospitals for tuberculous patients should be further increased. The number of local hospitals for the treatment of tuberculosis has increased in the last six years from two to nineteen. There are now seventy-nine public health nurses where formerly there were only two. Free tuberculosis dispensaries have increased from two to twenty-six, and the anti-tuberculosis societies have increased from two to 300, the membership of these societies now numbering 10,000. There were in the state, outside of New York City, 3,350 deaths from tuberculosis during the first seven months of 1911; for the same period of 1912 there were 3,301, a decrease of 49. For the first seven months of 1913 there were 3,118 deaths, showing a further decrease of 183. Ten counties in the state have voted to establish tuberculosis hospitals but have not yet done so. These counties should be urged with all possible force to carry out their plans.

New York City

Harvey Society Lecture.—The third Harvey Society lecture will be given at the New York Academy of Medicine November 1, by Dr. Charles V. Chapin, Providence, on "The Air as a Vehicle of Infection."

Hospital Wing Dedicated.—The new wing of the Misericorde Hospital was formally dedicated by Cardinal Farley on October 12. The hospital now contains twenty-five private rooms, five semi-private wards, three large maternity wards containing 150 beds and a children's ward with a capacity of 125 cribs.

The Coming Safety Exhibit.—The American Museum of Safety plans to have an International Exposition of Safety and Sanitation at the Grand Central Palace, December 11 to 20. Several European governments are in communication with Director William H. Tolman of the American Museum of Safety with a view to displaying factory safety devices, novel playgrounds and various methods of preventing human waste. The Swiss government has promised to send a full line of exhibits.

Central Federated Union and Medical Inspection in the Public Schools.—At a recent meeting of the Central Federated Union, resolutions were passed by the Executive Committee and forwarded to the Board of Aldermen and to the Board of Estimate and Apportionment asking those bodies to favor the increased appropriation asked for by the Division of Child Hygiene of the Department of Health. The resolutions urged free medical inspection for all students in the public schools. In framing these resolutions the Central Federated Union was joined by a number of other fraternal, labor and benevolent organizations.

Oppose Building of Another Bronx Hospital.—At a hearing before the State Board of Charities on October 16 representatives of the Lebanon Hospital, which is located in the Bronx, opposed the plan of building a maternity hospital in that borough. The organizers of the Bronx Maternity Hospital claim that they have $30,000 pledged toward such an institution and believe that it is needed, while officials of the Lebanon Hospital think they are abundantly able to care for all the work in that vicinity and fear that another hospital would divide the support and weaken them and at the same time would add to the burden of the city.

NORTH CAROLINA

Personal.—Dr. R. H. Lewis, Raleigh, who has been ill at his home in the country, is reported to be improving slowly.——Dr. Albert Anderson, Raleigh, has resigned as a member of the Wake County Board of Education.

State to Furnish Antityphoid Vaccine.—Dr. C. A. Shore, director of the state laboratory of hygiene at Raleigh, announces that he is now able to furnish antityphoid vaccination at cost, in accordance with the action of the last state legislature.

Pellagra Building.—Mr. George W. Watts, Durham, will add a new building to the Watts Hospital in that city, to be devoted exclusively to the study and treatment of pellagra. A proposition has recently been made to the general government to establish a pellagra station in Durham, with headquarters in the Watts Hospital.

PENNSYLVANIA

White Haven Open to All Physicians.—By a recent action of the board of directors of the White Haven Sanatorium Association, it was decided that applications for admission to the sanatorium would be received from any physician in good standing, and not from members of the regular examining staff alone, as heretofore.

Personal.—Dr. W. W. Livingston, Dunlo, suffered a fracture of the base of the skull and spinal injuries, by the overturning of his automobile, October 10.——Dr. E. R. Walters, who recently resigned as a director of public health of Pittsburgh, was given a farewell dinner by the employees of the public health and charities department, October 14. Dr. H. B. Burns, the new director of public health, officiated as toastmaster.

Philadelphia

New Children's Hospital.—The managers of the Children's Hospital have purchased a site at Eighteenth and Bainbridge Streets, where they will erect a group of modern hospital buildings, which will have the best modern facilities and equipment for the care of sick children, for research and education, and for the prevention of children's diseases.

Personal.—Dr. John Grier Hibben, president of Princeton University, was the guest of honor of the medical club of Philadelphia, October 17. Dr. Hibben addressed the physicians and pointed to their opportunity in combatting the social diseases.——Dr. H. Augustus Wilson has resigned as visiting orthopedic surgeon to the Philadelphia general hospital.——Dr. William G. Stimson, chief physician of the Naval hospital in this city, has been ordered to Washington, D. C., as a member of the board of examiners of the Marine Hospital Service.

RHODE ISLAND

Hospital Opened.—The Blackstone Hospital, Pawtucket, was formally opened and dedicated September 22. The institution can accommodate sixty-five patients and is provided with thoroughly modern equipment.

Typhoid Epidemic in Artillery Company.—A number of the members of the Newport Artillery Company are reported to be ill with typhoid fever in the Newport Hospital, the cause being said to be a result of the trip of the organization to Put-In-Bay, Ohio, to take part in the Perry Centennial celebration.

TENNESSEE

Witherspoon Club.—A social club, named in honor of Dean John A. Witherspoon of Vanderbilt University, was organized by the members of the senior class of the Vanderbilt Medical School, September 29, with an initial membership of twenty-one.

Sanatorium Operated by Labor Union.—The Pressmen and Assistants' Union has recently completed a sanatorium for consumptives at Rogersville, Tenn., where members of the craft suffering from tuberculosis may receive care at the expense of the local union.

New Medical Society Formed.—The physicians of Cocke County met at Newport recently and organized the Cocke County Medical Society, electing the following officers: president, Dr. A. J. Nease; vice-president, Dr. C. T. Burnett, and secretary-treasurer, Dr. David Seay.

Term Lengthened at Vanderbilt.—With the opening of the medical department of Vanderbilt University, Tennessee, this year, the term of the medical school will be lengthened to nine months corresponding with the dates of the academy and engineering departments. This change is in line with the expansion of the medical department under the Carnegie endowment.

Personal.—Dr. J. B. Steele, city physician of Chattanooga, has been appointed chief of staff of the Erlanger Hospital.——Dr. John Allen Gentry, Chattanooga, has been appointed chief surgeon of the Southern Bell and Cumberland Telephone and Telegraph Companies, with headquarters in Atlanta, Ga.——Dr. F. M. Acree, Dover, was thrown out of his buggy, September 24, and seriously injured.——Dr. John A. Witherspoon, Nashville, has returned from abroad.——Dr. Thomas M. Smoot has resigned as mayor of Woodbury.——Dr. S. Burchart, Memphis, has gone abroad for the winter.

GENERAL

Correction.—The illustrations accompanying the article by Dr. H. D. Chapin in The Journal last week, pages 1419-22, were printed in a turned position. The correct position can be seen by holding The Journal sideways with the top of it on the right hand. The illustrations will appear in the correct form in the author's reprints, a copy of which we will send on receipt of a self-addressed stamped envelope.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's German and Lincoln Hospitals, New York City, and the New York Eye and Ear Infirmary, $25,000 each.

Mount Sinai Hospital, New York City, $100,000, by the will of Benjamin Altman.

The Greenport Hospital, Long Island, $1,000, by the will of Salem D. Goldsmith.

For the St. Joseph's Hospital, Yonkers, N. Y., by popular subscription, $63,246.

Children's Hospital, Boston, Mass., $20,000 by the will of Miss Harriet O. Cruft.

Railway Surgeons Elect Officers.—At the tenth annual meeting of the American Association of Railway Surgeons, held in Chicago, October 15 and 17, the following officers were elected: president, Dr. D. S. Fairchild, Clinton, Iowa; vice-presidents, Drs. E. S. Judd, Rochester, Minn., R. A. Douglas, Collinsville, Okla., and L. L. Parsons, Brookhaven, Miss.; secretary-editor, Dr. L. J. Mitchell, Chicago (reelected); treasurer, Dr. H. B. Jennings, Council Bluffs, Iowa, and members of the executive board, Drs. S. C. Plummer, Chicago, and D. Y. Roberts, Louisville.

Students of Criminology Organize. — Preliminary steps toward the formation of a national association of psychologists, sociologists and medical scientists for scientific research addressed to fundamental conditions underlying criminology were taken at a dinner given by Dr. David C. Payton, superintendent of the Indiana Reformatory, Jeffersonville, at Indianapolis, October 13, at which thirty experts in criminology were present. A committee consisting of Dr. Peyton and

Prof. R. B. Von Klein Smid, Jeffersonville, Ind., Lightner Witmer, Philadelphia, Dr. William Healy, Chicago, and H. H. Hart of the Russell Sage Foundation, New York City, was appointed to work out plans for the new national organization.

Pediatrists Invited.—Through the courtesy of the New England Pediatric Society, an invitation has been extended to the members of the pediatric section of the Medical Society of the State of New York to attend the joint meeting of the New England, Philadelphia and New Jersey Pediatric societies, and the Pediatric Section of the New York Academy of Medicine, being held in Boston, November 8. The morning and afternoon are to be devoted to visiting hospitals, including the new Children's Hospital and the new Infants' Hospital, and clinics will probably be given at the Massachusetts Babies' Hospital, the Massachusetts General Hospital and the Boston Dispensary. There will be a dinner in the evening, and following this a scientific session at which four papers on pediatric subjects will be read and discussed.

Technology Faculty Member Goes to Public Health Service.—Prof. Earle P. Phillips, well known as a consulting sanitary engineer and as a contributor to the various technical journals along the lines of sanitary chemistry, bacteriology and engineering, has resigned from the faculty of the Massachusetts Institute of Technology, Boston, and from the staff of the sanitary research laboratory in that institution, to accept the professorship of chemistry in the United States Hygiene Laboratory, conducted by the United States Public Health Service in Washington, succeeding in that position Professor Franklin. Professor Phillips' work at the Hygiene Laboratory will be largely a continuation of his previous activities and will be devoted especially to investigation of the pollution of interstate streams—a work recently undertaken by the Public Health Service.

Sale of Christmas Seals by National Tuberculosis Association.—The Christmas seals of the National Association for the Study and Prevention of Tuberculosis have become familiar to almost everyone. In 1912 over forty million seals were sold, the proceeds of which were devoted to this most worthy cause. For 1913 the seal which we reproduce has been accepted; it is significant of the holiday season and is worthy of a place on every Christmas package or letter. It is proposed to distribute one hundred million of the seals, and it is hoped that by the 25th of December not one will remain unsold. The project is one which has previously been well supported by medical men; a renewed and greater interest should be given.

Dr. Reid Hunt's Successor.—An announcement of great importance is the appointment of Prof. Carl Voegtlin as professor of pharmacology in the Hygienic Laboratory, United States Public Health Service, to succeed Prof. Reid Hunt, now head of the department of [illegible] at Harvard University. Professor Voegtlin was [illegible] in 1879, received his degree of Ph.D. at Freiberg, Germany, in 1902 and then did postgraduate work at Victoria University, Manchester, England, in 1903. In 1904 he accepted the position of instructor in chemistry in the University of Wisconsin and one year later became assistant in medicine at Johns Hopkins University, rising successively to associate and associate professor of pharmacology. Since that time he has studied on various occasions at the universities of Berlin and of Munich. His work covers researches in pathologic protein metabolism, treatment of tetany with calcium salts, function of the liver in anaphylaxis and jaundice, the function of the adrenal cortex, pharmacology of digitalis and nitrates and the treatment of experimental beriberi. He is a member of a number of important scientific organizations, among them being the Society of Pharmacology and Experimental Therapeutics, American Medical Association, Society of Biological Chemists, and the American Physiological Society. Needless to say, the Hygienic Laboratory is to be congratulated on securing the services of a man of such high qualifications as Professor Voegtlin to succeed Professor Hunt. His appointment assures a continuance of the high standard of research work in pharmacology conducted at the Hygienic Laboratory. He is a young man of exceptional capacity and scientific attainments and with still greater promise for the future. Dr. Reid Hunt, whose appointment to the professorship of pharmacology at Harvard University has been coincidentally announced, is the second member of the Council on Pharmacy and Chemistry to go to Harvard.

CANADA

Increase of Defectives in Canada.—The following statistics of the bulletin just issued at Ottawa gives the defective classes in Canada: Blind, 3,238; deaf and dumb, 4,584; insane, 14,702; idiotic, 5,387, making a total of 28,611, of whom 15,530 are males and 13,081 females. From 1901 to 1911 the population increased 34.17 per cent. and the defectives increased 9.42 per cent. The only province which did not exhibit an increase was New Brunswick.

Personals.—Dr. Orr has been appointed medical officer of health at Medicine Hat, Sask.——Dr. H. J. R. Lindsay has been appointed medical officer of health at Yorkton, Sask.——Dr. James C. Fyshe, for the past two years medical superintendent of the Montreal General Hospital, has been appointed superintendent of the Edmonton, Alberta, hospitals.——Dr. G. Arthur Winters, Toronto, will spend two years abroad in graduate study.——Dr. J. T. Fotheringham, Toronto, has been appointed chief of one of the medical services in the Toronto General Hospital, succeeding Dr. W. P. Caven, resigned.

Pollution of Boundary Waters.—Dr. J. W. S. McCullough, chief health officer for Ontario, has left for Washington, D. C., to lay before the International Waterways Commission the report on the pollution of boundary waters based on investigations carried on during the past summer. Dr. McCullough will be joined in Washington by Dr. McLaughlin, who had charge of the work on the American side. The contention of the health authorities is that water contamination exists where the raw sewage of large cities is allowed to run into lakes and rivers, and this extends to such distances as to prove a serious menace to other places depending on these streams for a domestic supply of water.

Hospital News.—The Dominion Steel Corporation will build a hospital at Waterford, N. S. It will be administered by a board of trustees, one-half appointed by the company and one-half by the citizens of Waterford.——London, Ont., has recently added twelve new private wards to the Victoria Hospital.——By the end of the present year the new wing of the Kingston General Hospital will be ready for occupation.——The Brant Sanatorium for Consumptives has been opened near Brantford, Ont. The building cost $23,000 and has accomodation for twelve patients.——The Hamilton (Ont.) General Hospital will be improved to the extent of $100,000.——A new hospital for babies is being erected in Montreal.——The hospital at Selkirk, Man., is to be enlarged at a cost of $65,000.——The provincial university of Saskatchewan at Saskatoon has prepared plans for a new hospital.——A new isolation hospital is to be erected in Regina, Sask., at a cost of $77,600.——The Dominion Government has granted 320 acres of land on the main line of the Canadian Pacific Railway in Alberta for a sanatorium for incipient cases of tuberculosis.

LONDON LETTER

(*From Our Regular Correspondent*)

London, Oct. 11, 1913.

The National Insurance Act

A curious situation has occurred in connection with medical benefit under the insurance act. For one reason or another, 400,000 of the insured in London (about a quarter of the whole) have not selected any physician on the panel. In some cases the reason is a rooted objection to the act or an objection to being treated by any one but the patient's own physician, who has not joined the panel. In other cases the persons have not been ill, do not expect to be ill, and will not go to the trouble of selecting a physician. The result is that a large sum, $525,000, has accumulated in the hands of the insurance committee. The question has arisen, To whom does this belong? On the one side it is argued that the money belongs to the physicians on the panel because it is already set aside for medical service and they had taken the risk of the illness of these persons on an insurance basis. On the other hand, the insurance committee has taken a lawyer's opinion, which is to the effect that the physicians on the panel are entitled to a definite sum calculated at so much per head for the insured persons on their list and to no more.

A case has occurred in which for the first time the question has been raised as to the responsibility of a panel doctor to pay for the medical attendance of an insured person on his list whom he failed to attend when called. The patient was attacked with pneumonia. A message was sent to the physician asking him to call. As he did not come another message was sent four hours later and he promised to come. A third message was sent three hours later by the patient's sisters and some altercation took place. The physician complained that he had not been summoned in the morning when he could have paid the visit on his rounds. He was told that if he would not come now some one else would be called. He said, "I am not coming; go and get some one else." For the defense the doctor stated that the first message reached him at 3 in the afternoon when he had a "snack" and attended patients in his office. He was leaving to attend the patient when the latter's sisters arrived and insisted on his going immediately. He became nettled at their manner and when they said that they would get another physician he took that as his dismissal. Judgment was given for $11 claimed by the plaintiff for the expense of engaging another physician, but leave was given to appeal on a point of law.

Sir William Osler on Medical Examinations

At the opening of St. George's Hospital Medical School, Sir William Osler delivered an address on examinations. He said that the great difficulty in medical study was the growth of every subject of the curriculum. An educational system framed for simple tests and simpler conditions had been outrun, and the pressure at the present day was hard on the teacher but harder on the student. From their medical workshops they turned out after five years' preparation the finished material, nearly one-half of which was declared to be defective and rejected. The growth of rejection in the final examination was demonstrated by the following figures: In 1861, 12 per cent.; in 1876, 2 per cent.; in 1886, 32 per cent., and in 1895, 41 per cent. He made the following suggestions: Simplify the curriculum so as to give the student more time. Allow the teachers a free hand in the matter of systematic lectures. Let the lectures be reduced to a minimum, or abolished altogether. The subject of medicine may be taught, for example, without systematic lectures. The lecture has its value, but its day is gone, and it should give place to other methods better fitted to modern conditions. They should boldly acknowledge the futility of attempting to teach all to all students. They should burn the anatomic fetish to which they had sacrificed long enough and to their great detriment. "Glance at Cunningham's 'Anatomy.' It has 1,465 pages, many in small type, and not one without a water-jump for the first grand national of the medical student. It is barbaric cruelty with so much ahead to burden the mind with minutiae which have only a Chinese value—a titanic test of memory." He would give credit for work done throughout the course. Let all who taught examine, and let education and examination go hand in hand. Further, he would simplify the examinations. Let them cut out the written papers, for as a student handled a patient it was easy to tell whether or not he had had a proper training, and for that purpose fifteen minutes at a bedside were worth three hours at the desk. When possible, the evidence of original work should be substituted for examination. He would compel no student to pass an examination in the same subject a second time.

The Dangers of Radium

Last week reference was made to the fact that most of the staff of the Radium Institute were suffering from burns produced by radium. The assistant medical superintendent, Dr. Arthur Burrows, states that most of the staff have been burned to a greater or less extent at some time or another. In his own case he found the skin peeling off his fingers when he went to play golf. The nurses, however, who do most of the actual handling, suffer most. In addition to the more or less painless skin-peeling, the finger-nails become brittle and split down the center, ulcerated spots appear, and in time the hands become totally anesthetic. It is curious that the hands of those who have much to do with radium are always far more susceptible to heat than to cold. Gloves are not much protection. The only thing to do when the fingers show these symptoms is to have nothing to do with radium until they recover. Those who develop burns are usually given some work in connection with the institute which does not involve immediate contact with the element. Radium in course of time burns most things to which it comes in contact. For instance, the lining of the boxes in which it is kept is often entirely eaten away. The ill effects are not felt in the human body until a fortnight after the contact. It eats away the abnormal tissues, such as carcinoma, sarcoma, etc., and leaves the surrounding normal tissues in an ordinary condition. In its antipathy to abnormal tissues lies its curative properties in these cases. But in time, or as the result of excessive application, radium will have an effect also on the normal tissues. A subsidiary effect on the patient is increased susceptibility to changes of temperature over areas that have been treated with radium. Many patients who have had rodent ulcers and superficial skin lesions cured with radium experience great discomfort at the site of the old lesion when very cold or very warm air plays on it. This susceptibility, however, gradually disappears in two or three months. A marked condition of lethargy is frequently, it might almost be said invariably, noted in patients receiving prolonged exposures with large quantities of heavily screened radium. It generally makes its appearance about the fourth day of the treatment, and passes off within a few days of the cessation of the exposures.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Oct. 10, 1913.

Mosquitoes in Paris

Continuous rains this summer and autumn have favored the breeding of mosquitoes, which swarm at present in various quarters of Paris. Professor Laveran, on account of his well-known mastery of the subject, was requested by the Council on Public Hygiene to study the subject, and has recommended measures of public education with regard to the prevention of mosquito-breeding.

Physical Culture in the Schools

Professor Gilbert has called the attention of the minister of public instruction to the failure to put into force the law of February, 1880, which makes gymnastic exercises obligatory in lyceums, colleges and primary schools. It was decided that the first application of the law should be made at the Janson-de-Sailly Lyceum. Only those students are to be excused who can produce a medical certificate that their health will not permit them to join in the exercise. It is to be hoped that the measure will soon be extended to all the schools to which the law applies.

Unveiling of a Monument to the Memory of Professor Raymond

I have already mentioned the unveiling of a bronze medallion in memory of the late Professor Raymond at the Salpêtrière (The Journal, Aug. 9, 1913, p. 422). On October 4 a bronze bust of Professor Raymond was unveiled at his birthplace, Saint-Christophe, near Tours.

Education of a Child Relieved of Congenital Blindness

Dr. Moreau of Saint-Etienne reports in the *Loire médicale* the history of a child of 8, born blind, who was operated on in his service for a complete bilateral cataract. Until entering the hospital, the child had lived at home with his father, a poor peasant, and had received no education whatever. It was an anxious moment when, a week after the operation, the bandage was removed from the eyes. But the child, on being able to see for the first time, made simply a few meaningless sounds. The bandage was replaced, and the trial repeated two days later. The child again showed no emotion. As each object was shown to him after he had touched it so that he knew it perfectly well, he said that he did not know what it was. It took many days for the child to acquire an idea of colors, but when he did, the color-concept assumed an abnormal significance, and everything was interpreted from this point of view. Whatever object was shown to the child was white or black according to whether it faced the light or was in shadow. He analyzed everything that he saw into colored spots. Each new thing that he learned, however, was of use in appreciating things that came after; thus, when the child learned that an object was a box, everything empty that he could stick his hand into was for him a box: his drinking-cup, his cap, his boots, etc. Whenever he wished to take hold of anything he acted as one does who can see, but in grasping it he relied more on the sense of touch than he did on sight. He had no sense of space. He tried to touch lamps which were a hundred feet away. He mistook the moon for one of the latter. He reached for the stars. Fifteen months after his entrance into the hospital he could not read, in spite of the efforts of the nun who took care of him to teach him the alphabet. Then his father took him away. Dr. Moreau saw the child a year later. He had remained at home without further education, had learned nothing new, and had forgotten most of what he had picked up while at the hospital.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 3, 1913.

Future Regulation of the Relation of Physicians to the Krankenkassen in Berlin

The president of the Berlin Insurance Bureau, the highest local authority for the social insurance law, has presented a draft of principles which are to form the basis for regulating the relations between the Krankenkassen and physicians. As these conditions will serve as a model for many Krankenkassen in the empire, and govern a great part of the entire practice of Berlin, the ultimate form of the regulations is of very special importance. The Krankenkassen are to have the right to determine the medical system that is suitable for the societies. In any society the physicians appointed form a medical league to be represented by a business board. The Krankenkassen have the right to appoint special confidential physicians *(Vertrauensärzte)*. In every society a commission on complaints is to be appointed, consisting of the same number of representatives of the society and of the society physicians. Societies which accept these rules will form (1) an election committee for the selection of the physicians to be appointed for the society, and (2) an arbitration court for the settlement of disputes. With reference to the appointment of insurance physicians the draft gives the following: The number and territory of physicians are to be determined by the directors of the society. According to the new apportionment of physicians, one physician to 800 members is to be regarded as normal. A registration bureau is to be established and from the list of suitable names the election bureau is to fill vacancies. Individual solicitation for appointment is forbidden on pain of exclusion from the eligible list. Contracts must be made in writing between the society and the physician to be appointed or the medical committee of the society. In the latter case, the other physicians become responsible for the performance of the duties of insurance physician with the signing of a reciprocal bond. Insurance physicians must not have separate offices for insurance work, must not treat patients in common as to time or place with charity patients, and must not use them for teaching purposes without their express permission. The insurance physician is to be assured sufficient rest on Sundays and holidays. For the remuneration of the insurance physician a definite annual fee of $1.25 (5 marks) per member is established. The work of the insurance physicians includes also night visits and obstetrics, including abortion. Night visits are to be paid for at the rate of $1.25 (5 marks) and obstetric attendance at $3.75 (15 marks) extra.

In the discussions of the central league of the Berlin insurance physicians over this draft of regulations, dissatisfaction with the marked tendency to restrict the rights of physicians in favor of the Krankenkassen was generally expressed. The first provision by which the Krankenkassen alone are to have the right to determine the medical system which is to be enforced is particularly objectionable, because with this right the free choice of physicians, the ideal to be sought for, which exists in a great number of the societies, can be abolished. Moreover, special opposition appeared to the provision that most physicians after the reorganization will be transferred from the society to which their previous patients belonged and will not be automatically reappointed, but must first secure a new election. The provision by which the insurance physicians' offices may not be located in a different place from their private offices was considered to be a serious damage to many specialists who, on account of the great distances in Berlin, are compelled to have offices for the insurance patients in another quarter of the city from that in which their private residences are located. The fee of $1.25 (5 marks) is regarded as too little. At least $1.37 (5.5 marks) was demanded.

New Sanitary Office of the Military Institute

The establishment of higher sanitary service in our army received a considerable extension, October 1, by the establishment of a new sanitary office for the Military Institute. The function of this bureau is the examination of all the military reports in accident cases, inspection of parade grounds, military schools, etc.

Marriages

William Ernest Balsinger, M.D., Houston, Tex., to Miss Loretta L. Brown of Fargo, N. Dak., at Houston, October 7.

Edward Brendon, M.D., Farley, New Hartford, Conn., to Miss Mary Elizabeth Shannon of Collinsville, September 30.

James Payton Leake, M.D., U. S. P. H. S., Washington, D. C., to Miss Mary Chase King of Baltimore, Md., October 4.

George Huston Bell, M.D., New York City, to Miss Florence Winifred Collings of Halifax, N. S., September 27.

Russell McWhorter Cunningham, M.D., Ensley, Ala., to Miss Annice Taylor of East Lake, Ala., October 4.

Albert Eugene Sterne, M.D., Indianapolis, to Mrs. Stella Gallup Pickrell of Evanston, Ill., October 18.

Alfred C. Girard, M.D., U. S. Army (ret.) Washington, D. C., to Miss Charlotte Epping, October 8.

Axel Emanuel Hedlund, M.D., Dalton, Neb., to Miss Ethel M. Kreader of Nebraska, September 21.

James L. Holden, M.D., Columbus, Ohio, to Miss Brenda Miller of Zanesville, Ohio, October 9.

Arthur Christian Slinde, M.D., to Miss Regina Alicia Murphy, both of Chicago, October 8.

William Spencer Needham, M.D., to Miss Mae McNeil, both of Louisville, Ky., August 23.

Walter G. Eisenman, M.D., Chisholm, Minn., to Miss Hinkle of Chicago, October 9.

Ida Rebecca Lantz, M.D., and Mr. Franklin Muir, both of Spokane, Wash, September 3.

Louis Northcott Markham, M.D., Longview, Tex., to Miss Princess Finch, October 22.

Oliver D. Walker, M.D., to Miss Margaret M. Moore, both of Salina, Kan., October 9.

Clarence J. Kenney, M.D., to Miss Eunice Thomsen, both of Milwaukee, October 9.

Deaths

William Hudson Wathen, M.D. one of the most prominent men in medicine south of the Ohio River; a gynecologist of wide repute; died in St. Anthony's Hospital, Louisville, October 7, aged 67. He was born near Lebanon, Ky., the son of Richard and Sophia Abell Wathen. He received his preliminary education in St. Mary's College, and took his medical course at the University of Louisville, graduating in 1870. He received from Notre Dame University the degree of LL.D. in 1895. He began practice in Louisville in 1871. He was one of the founders of the Kentucky School of Medicine, and served as its dean for several years, and as professor of abdominal surgery and gynecology on its faculty. After the consolidation of the school with the University of Louisville, he retained this chair in the new institution. He was a Fellow of the American Medical Association, chairman of the Section on Obstetrics and Gynecology in 1889, and orator in surgery in 1907. He was a member of the Kentucky State Medical Society, and its president in 1888; a fellow of the American Gynecological Society, and a charter member of the Louisville Clinical Society. He was also a member for many years of the Mississippi Valley Medical Association and many other learned societies. He took a deep interest in medical education, and was one of the leaders in its renaissance in Kentucky. After the enactment of the medical law Dr. Wathen served as medical referee for Jefferson County, and to him, more than to any one else, with one exception, is due the fact that Kentucky occupies the unique position of being the only state which has not in it an advertising or quack doctor. He did much original work in surgery, and ranked at the head of the specialists in his state, especially with reference to vaginal surgery. He was an indefatigable worker, a loyal friend and an honest but persistent fighter. In his death, which occurred after a three weeks' illness, the profession of Kentucky has lost probably its most effectual individual worker. At his funeral six of his nephews acted as active pallbearers. The staff of St. Anthony's Hospital, of which Dr. Wathen was the senior member, on October 9, unanimously adopted resolutions setting forth the honesty of purpose, indomitable courage of conviction and uniform kindly courtesy, his faithful service and unswerving attention to duty; extending sympathies and condolence to the bereaved family and to the sisters in charge of the hospital, and directing that a copy of the resolutions be spread on the minutes of the staff and hospital and duly published.

Charles Eugene Michel, M.D. Medical College of the State of South Carolina, Charleston; 1857; a surgeon in the Confederate service during the Civil War, division medical inspector at its close, and since that time an oculist of St. Louis; for many years professor of ophthalmology in the Missouri Medical College, and a member of the staff of the St. Louis Eye, Ear, Nose and Throat Infirmary; said to have been the first to employ electrolysis in his specialty, and to use the present accepted method for the removal of pterygium, and one of the first to discard the method of keeping cataract patients in a dark room for a long time after operation; died at his home in St. Louis, September 29, aged 80. The directors and staff of the infirmary of which he was so long a member of the active and honorary staffs adopted resolutions deploring Dr. Michel's death, and setting forth his services to the medical profession and especially to ophthalmology.

James Lewis Srodes, M.D. University of Pittsburgh, Pa., 1881; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; surgeon of Pennsylvania Volunteers during the Spanish-American War; for one term a member of the House of Representatives of Pennsylvania, and for eleven years superintendent of the Allegheny County Home and Hospital for the Insane, Woodville, Pa.; died at his home in Woodville, September 26, aged 51.

Robert L. Brodie, M.D. Medical College of the State of South Carolina, Charleston, 1851; a Fellow of the American Medical Association; assistant surgeon in the United States Army from 1854 until the outbreak of the Civil War, when he resigned and entered the Confederate service, in which he served as medical director; afterward a resident of Charleston; at one time president of the Medical Society of South Carolina; died at his home in Charleston, October 2, aged 84.

Thomas Jacob Biggs, M.D. Medical College of Ohio, Cincinnati, 1887; formerly a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; at one time health officer of Glendale, Ohio, and acting assistant surgeon, U. S. Army; for many years a practitioner of Stamford, Conn., and surgeon for the Stamford Hospital; died in the Somerset Hospital, Somerville, N. J., October 11, from chronic nephritis, aged 48.

Herman D. Peterson, M.D. Chicago Medical College, 1892; a Fellow of the American Medical Association; a member of the Physicians' Club of Chicago and Mississippi Valley Medical Association; anesthetist to St. Luke's Hospital, Chicago, and attending gynecologist to St. Luke's Hospital Free Dispensary; lecturer on anesthetics in Northwestern University Dental School; died October 18, while being taken to St. Luke's Hospital, from pneumonia, aged 43.

Jerome Leslie Stone, M.D. New York University, New York City, 1878; a member of the Minnesota State Medical Association; physician in charge of the Rochester (N. Y.) Sanatorium from 1880 to 1885, and since that time a practitioner of Minneapolis; was found dead in his home in that city, October 8, from the effects of poison believed to have been self-administered, aged 62.

Nathaniel Meacon Semple, M.D. Washington University, St. Louis, 1897; a Fellow of the American Medical Association, and a member of the St. Louis Ophthalmological Society; assistant in the eye clinic in his alma mater; consulting oculist to the United Railways Company of St. Louis and the Missouri Baptist Sanitarium; died at his home in St. Louis, October 3, aged 37.

Charles John Martin Willich, M.D. Bellevue Hospital Medical College, 1893; for thirty-two years a tester of scientific apparatus, and prominent as a physicist and chemist; died at his home in Brooklyn, September 23, from malignant disease of the throat, aged 62.

Frank Frazer Thomson, M.D. Jefferson Medical College, 1894; chief medical examiner of a Philadelphia insurance company and a member of the staff of the Presbyterian Hospital; died at his home in Philadelphia, September 21, from uremia, aged 45.

Mark E. Crawford, M.D. Missouri Medical College, St. Louis, 1881; a member of the Missouri State Medical Association; died at his home in Camden, July 31, from cerebral hemorrhage, aged 58.

Charles B. Tompkins, M.D. Rush Medical College, 1861; assistant surgeon and surgeon of the 17th Illinois Volunteer Infantry, and surgeon of the 59th Illinois Volunteer Infantry during the Civil War, afterward a practitioner of Lewistown, Ill.; since 1886 a practitioner of Jasper, Fla.; died at the home of his son in South Jacksonville, Fla., September 17, aged 75.

Robert Delos Smith, M.D. Jenner Medical College, Chicago, 1903; of Yerington, Nev.; a Fellow of the American Medical Association; one of the leading practitioners of Mason Valley, Nev., where he founded hospitals at Yerington and Mason, and was a surgeon for the mine smelter and local railroad surgeon; died suddenly in Denver, October 2, aged 41.

Herman Christian Thiess, M.D. Columbus (Ohio) Medical College, 1886; a member of the Ohio State Medical Association, and at various periods president, vice-president, secretary and treasurer of the Summit County Medical Society; was struck by a street-car, October 12, in Akron, and killed, aged 49.

Clarence Fay Wood, M.D. New York University, New York City, 1895; a practitioner and for six years president of West Winfield, N. Y.; a Fellow of the American Medical Association; aged 39; was killed at Clayville, October 8, by a collision between his motor-car and a train.

Vannie E. Smith, M.D. Kentucky School of Medicine, Louisville, 1894; a member of the Kentucky State Medical Association and a practitioner of Powersville; died recently at the home of his sister in Covington, Ky., from carcinoma of the stomach, aged 44.

Edwin Clifford Town, M.D. Jefferson Medical College, 1873; a Fellow of the American Medical Association; chief medical examiner in the relief department of the Pennsylvania Railroad; died at his home in Narberth, Pa., September 29, from nephritis, aged 63.

Joseph Neely Hopkins, M.D. College of Physicians, Keokuk, Iowa, 1885; a Fellow of the American Medical Association; for many years a practitioner of Burnt Prairie, Ill.; died at the home of his sister in Princeton, Ind., October 7, from neuritis, aged 67.

Seiler Joseph Aspelund, M.D. University of Minnesota, Minneapolis, 1906; a Fellow of the American Medical Association; for two years assistant city physician of Minneapolis; died at his home in that city, September 26, from heart disease, aged 33.

Frank D. Whiteacre, M.D. University of Michigan, Ann Arbor, 1894; for twenty-eight years a practitioner of Romulus, Mich.; postmaster of that town and a member of the school board; died at the home of his cousin in Detroit, September 14.

A. Marshall Stephens, M.D. Hahnemann Medical College, Chicago, 1884; formerly a clergyman and member of the faculty of Hamline University; died at his home in Red Wing, Minn., September 21, from cerebral hemorrhage, aged 71.

Edmunds Marshall Bloomfield, M.D. University of Michigan, Ann Arbor, 1869; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; died recently at his home in Peru, Ind., aged 72.

Alexander M. Todd (license, Colorado, 1893); said to have been a graduate of the University of Iowa, Iowa City, and a practitioner for more than forty-three years; died in the Denver County Hospital, September 17, aged 68.

Horatio Henry Brown, M.D. University of La Salle, Sewanee, Tenn., 1898; a member of the Tennessee Medical Association; formerly of Sharon, Tenn.; died at his home in Jackson, Tenn., October 5, from uremia, aged 42.

Richard Dulaney Leith, M.D. College of Physicians and Surgeons, Baltimore, 1877; of Vienna, Va.; died in a sanatorium near Richmond, Va., September 27, from arteriosclerosis, aged 60.

Lingard I. Whiteford, M.D. College of Physicians and Surgeons, Baltimore, 1897; of Fullerton, Md.; died at the home of his mother in Parkville, Baltimore, August 8, aged 35.

Alfred Jefferson Wenner, M.D. Medico-Chirurgical College of Philadelphia, 1894; died at his home in Wilkes-Barre, Pa., September 15, from cerebral hemorrhage, aged 49.

George Washington Truitt; M.D. University of Maryland, Baltimore, 1889; died at his home in Carsonsburg, Md., September 4, from disease of the stomach, aged 61.

Albert B. Wolverton, M.D. Indiana Medical College, Indianapolis, 1873; of Wakarusa, Ind.; died in the Marion Soldiers' Home Hospital, September 14, aged 65.

The Propaganda for Reform

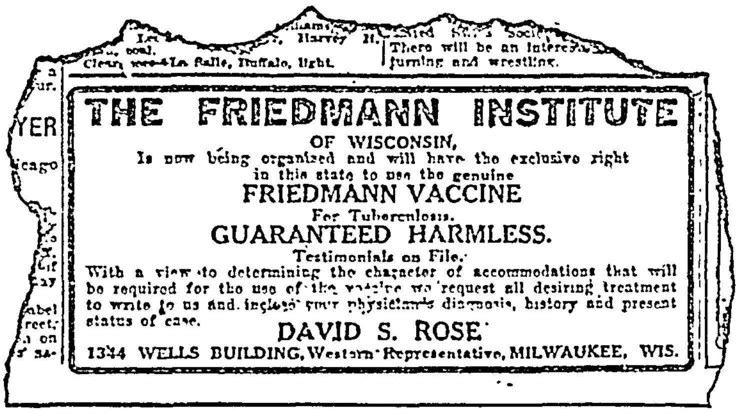
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE FRIEDMANN "CURE" LIBEL SUIT

An Attempt to Bluff the Journal Into Silence

As we went to press last week, the newspapers announced that a libel suit had been entered against the American Medical Association for $100,000, the libelous articles being those The Journal has published regarding the Friedmann "cure." The suit is brought in the name of Dr. J. J. Meyer. While the newspapers refer to him as a physician of Milwaukee, he is, as a matter of fact, a New Yorker, who represents the concern that is commercializing the Friedmann "cure," purchased, it is said, by the Eisner-Mendelson Company of New York.

So far, The Journal has not mentioned the name of any individual connected with the Friedmann exploitation in this country, the wretched business having been dealt with only in a general way. Now it becomes necessary to be specific. This Dr. J. J. Meyer, who suddenly steps into the limelight, seems to be employed by the "Friedmann Institute of New York, Inc.," to go about the country "demonstrating" the administration of the Friedmann product in behalf of the so-called Friedmann institutes. The "Friedmann Institute of New York, Inc.," is located at 90 West Street—the address of the Eisner-Mendelson Company, the reported purchasers of Friedmann's "cure." The letters sent out by the "Friedmann Institute of New York, Inc.," are signed by Moritz Eisner, president of the Eisner-Mendelson Company. The Eisner circulars describe Meyer as a "specialist in the administration of Friedmann's vaccine." In selling his professional services to aid and abet the Friedmann institutes in their methods of exploiting the tuberculous, Meyer disgraces the name of physician and deserves to be classed with other "consumption cure" promoters.



THE FRIEDMANN INSTITUTE

OF WISCONSIN,

Is now being organized and will have the exclusive right in this state to use the genuine

FRIEDMANN VACCINE

For Tuberculosis.

GUARANTEED HARMLESS.

Testimonials on File.

With a view to determining the character of accommodations that will be required for the use of the vaccine we request all desiring treatment to write to us and inclose your physician's diagnosis, history and present status of case.

DAVID S. ROSE

1334 WELLS BUILDING, Western Representative, MILWAUKEE, WIS.

Photographic reproduction of Rose's advertisement in Milwaukee newspapers. If the stuff really were a cure what should be thought of individuals who would brazenly advertise the "exclusive right" to the use of a remedy for the great white scourge? Note the claim: "Guaranteed harmless!"

Linked with Meyer's name is that of David S. Rose, who appears as one of Meyer's attorneys. Rose is the western representative of the Friedmann concern. He is something of a politician and will be remembered, at least by Wisconsin physicians, as an ex-mayor of Milwaukee; he also will be remembered by some for his connection with the "Twin Buttes Mining Company." In the minds of many Wisconsin physicians, Rose's connection with the Friedmann "cure" will merely confirm the opinions which they already hold, of both the man and the "cure." Rose has been writing to the Milwaukee newspapers, thus getting some free advertising both for the Friedmann "cure" and incidentally for David S. Rose. He claims to be an "authority on this subject and entitled to be considered as such." Rose tells the public that the Friedmann cure is a success! Physicians sufficiently expert to be employed by the United States government have declared otherwise. Rose expresses great confidence in the "cure"! A committee of the foremost physicians in Canada thoroughly investigated it and declared that "nothing has been found to justify any confidence in the remedy." Rose is enthusiastic in his praise of the "serum"! German physicians generally, and the Berlin profession in particular, condemn it. Rose thinks it a great therapeutic advance! Physicians from the Rhode Island State Sanatorium, reporting the results in 120 cases, state that patients who took the Friedmann "treatment" were worse off than if they had taken ordinary sanatorium treatment. The preposterousness of such a man as Rose posing as an authority on a subject of this sort ought to be evident to the public. Rose may be an authority on ward politics, he doubtless knows a good deal about mining propositions, and as a general all-around salesman he unquestionably has the advantage of physicians. When it comes to therapeutic products, however, he knows just as much about them as the veriest street-corner pedler who dispenses Dr. Quack's Sure Specific—and no more. That the defenders of the Friedmann "cure" are men of this type speaks volumes.

When the fallacy—if not fraudulence—and the danger of Friedmann's remedy came to be fully realized, it seemed evident that no high-class firm would have anything to do with the exploitation of the product. And none has. According to reports, the concern with which Friedmann finally concluded his commercial "dicker" was that of the Eisner-Mendelson Company of New York. It is not a company that from its history would inspire confidence. First incorporated in 1886 under the laws of Pennsylvania, it seems to have gone out of existence in 1892, to be immediately reincorporated under the same name in West Virginia. In 1900 the courts sustained an award of damages against the company for trade piracy. The company put on the American market a mineral water, the bottle and label of which infringed the rights of the owners of a well-known aperient water. The court declared that the company intentionally imitated the label "for the purpose of obtaining . . . a part of the good-will which the —— water had gained." The court went on to say that there was "nothing to show that it was not a case of undisguised piracy." The Eisner concern was assessed damages to the extent of approximately $30,000. In 1902 the company was again reincorporated, this time under the laws of New York. Still later —in 1907—there seems to have been one more reorganization, again under the same name but this time in the state of Maine! At various times the company has attempted to sell its stock to physicians and as late as May, 1913, a stock and bond concern of Chicago circularized physicians in a similar attempt, stating as an inducement, that "this company has lately acquired the Friedmann cure." It seems entirely fitting that such a concern should be the one to exploit Friedmann's grossly commercialized "cure."

The Journal is ready to meet in a court of law, on the proposition laid down, any individual, company or "institute" that is commercially exploiting the Friedmann "cure." It would be delighted to have the opportunity. But it will never be given the chance as, in its opinion, the present suit is a mere bluff. If the exploiters of the tuberculous think that they can intimidate The Journal of the American Medical Association from warning the consumptives of the country against the present disgraceful commercialization of the Friedmann "cure," they are badly mistaken.

ABSORBINE, JR.

Young's Panacea for Earthly Ills

Absorbine, Jr., is a liniment sold by W. F. Young, P.D.F. (whatever these letters may mean), Springfield, Mass. Like most "patent medicines," the claims made for Absorbine, Jr., seem to be limited chiefly by the legal restrictions on untruthfulness. Not long ago the label read:

> "Absorbine, Jr., removes any soft bunch without blistering or inconvenience."

Now the "lie direct" has made way for the "lie with circumstance," and the later label reads:

> "Absorbine, Jr. To remove soft bunches without blistering or inconvenience."

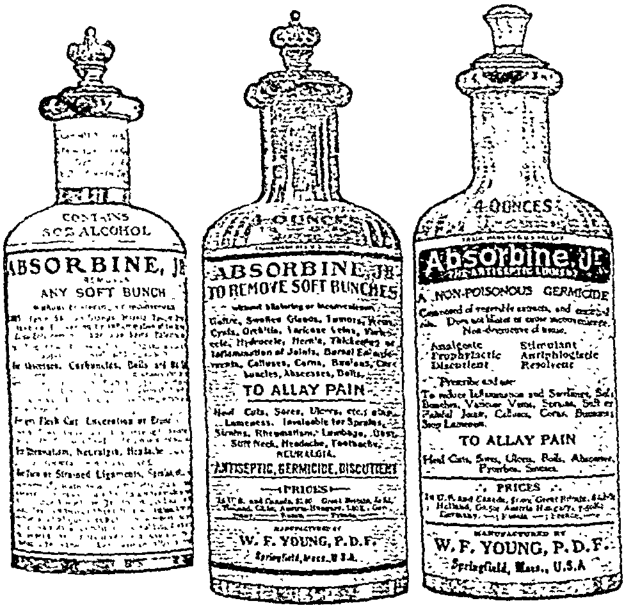
Absorbine, Jr., also used to "cure"—on the label—such things as goiter, rupture, orchitis and tumors. By inference, it still does so. In the booklet that comes with the bottle we used to read, under the title "A Discovery of Importance," this statement:

> "Absorbine, Jr., the Only Remedy Known that Positively Cures Varicose Veins. . . ."

Now, under the same heading, we read:

> "Absorbine, Jr., the Best Known Safe and Successful Remedy for Treating Varicose Veins. . . ."

Even in the 1913 packages of Absorbine, Jr., the stuff is inferentially sold as a cure for the following conditions: Rheumatism, neuralgia, headache, varicocele, orchitis, toothache, corns, goiter, dandruff, "catarrh," hay fever, piles, elephantiasis, milk leg, and several other conditions. In connection with the *liniment, Young also advertises, in the booklet* that is wrapped around the bottle, his "Combination Tablets No. 3." These are said to be a "homeopathic combination," which is said to "act specifically on the entire reproductive and *nervous systems . . .*" *Young's booklet gives* the impression that what "Combination Tablets No. 3" will not do is hardly worth mentioning. Nervous debility, uterine displacements, gonorrhea, carbuncles, aneurysm, goiter—these are but a few of the conditions that Young's Combination Tablets No. 3 will "overcome."



The evolution of a label! Three bottles of "Absorbine, Jr.," in varying stages of truthfulness. Note that the oldest bottle bears the legend: "Contains 50% Alcohol." In the stuff as now sold acetone takes the place of alcohol.

Both the carton in which Absorbine, Jr., comes and the booklet around the bottle contain a "reprint of a report of the Iamatological Bureau on the action of Absorbine, Jr." This sounds imposing and, from the prominence given it by W. F. Young, P.D F., is doubtless intended to be imposing. The report is by one Willard H. Morse, M.D., "Consulting Chemist and Therapeutist, Fellow of the Society of Science (London), American Director of Bureau of Materia Medica, etc."

As The Journal has said many, many times, Willard H. Morse is one of those parasites on quackery that furnish fake analytical reports. The fact that he is a "Fellow" of the "*Society of Science, Letters and Art (London)" in itself* arouses suspicion, for this so-called society is a seriocomic fraud to which quacks and others pay one guinea ($5) for the purpose of writing after their names the magic letters "F.S.Sc. (Lond.)." There may be a great many medical frauds that Morse has not reported favorably on, but we do not know of them. Epilepsy cures, tobacco-habit cures, consumption cures, fake dietary systems, frauds like the Oxydonor, Duffy's Malt Whiskey, Manola, Oleozone and the Ideal Sight Restorer—these are but some of the things for which Willard H. Morse, M.D., F.S.Sc. (Lond.), stands professional sponsor. How much the manufacturers of Absorbine, Jr., had to pay Willard H. Morse for his report we do not know, but whatever the amount, it was not worth it. Reports emanating from Morse's "bureau" are pretty rotten props for anything to rest on.

A bottle of Absorbine, Jr., was purchased in the open market not long ago and examined in the Association's laboratory. The chemist's report:

"Absorbine, Jr., is a clear, bright green liquid having a strong, penetrating, mint-like odor. From our examination it seems that the product is an acetone extract of some plant, probably wormwood, with the possible addition of some oil of sassafras and menthol. A product almost identical in physical appearance may be made from the following formula:

Oil of wormwood	1 dram
Oil of sassafras	16 minims
Menthol	15 grains
Acetone, sufficient to make	27 drams

Absorbine, Jr., is but another example of those fraudulent methods of exploitation that seem inseparable from the "patent medicine" business. Needless to say the stuff never cured a case of goiter or rheumatism or elephantiasis or hydrocele or varicose veins. Neither did "Young's Combination Tablets No. 3" ever "overcome" uterine displacements, gonorrhea or syphilis.

If Absorbine, Jr., were put on the market under a nonproprietary name and truthfully exploited, there would be very little of it sold. But enveloped in the mystery of secrecy and advertised with a reckless disregard for truth it, no doubt, *is a money-maker. As sold at present, it is a fraud.*

THE ARMY AND NAVY MEDICAL RECORD

A Fraudulent Publication Whose Editorial Opinions Are for Sale

Whenever a business assumes certain proportions, subsidiary businesses spring up to cater to the needs of the larger enterprise. For some years the nostrum business has grown so large that it has furnished a more or less precarious life for many individuals who have catered to it. There are, for instance, men whose *trade it is to obtain testimonials*; others, claiming a long string of imposing degrees, will furnish fake reports and bogus analyses; still others issue at irregular intervals publications with high-sounding names which sell editorial indorsement to the products of concerns such as are willing to pay the price asked. "Journals" of this type have been called to the attention of our readers at different times; the *New York Health Journal* and the *United States Health Reports* come to mind at this moment. Both of these had their day and died a natural death, as all such publications must when once the public is cognizant of their true character.

TWO LETTERS

More recently the attention of The Journal has been called to a publication calling itself the *Army and Navy Medical Record*. A physician in the South sends a letter he had received from the *Army and Navy Medical Record* reading as follows:

> "We have had many favorable reports reach us relative to your most excellent institution, and, as you are doubtless aware, we come in direct contact with a large number of Army and Navy and other government attachés who have sons that they desire to provide with a medical education combined with the higher course included in your up-to-date laboratory methods and the *sciences incidental to* clinical medical practice.
>
> "If you will regard the proposition as confidential, we will agree to carry a one-fourth page advertisement of your university at the nominal rate of $38 per year, provided this amount is forwarded in

advance at the time copy is furnished; and *we will further promise to editorially indorse and recommend your school and its methods without qualification or exception.* [Our Italics.—Ed.] This article you should be able to use (and are authorized to do so) after publication for advertising purposes.

"We will also be able, and are willing, to *furnish you with a desirable list of probable candidates from time to time.*

"Kindly let us hear from you at once, if interested, and oblige,

"Yours with best wishes,

"The Army and Navy Medical Record,
"Arthur G. Lewis, Managing Editor."

The physician to whom this was addressed made a notation on the letter to the effect that "this looks crooked." A few weeks later, Dr. V. C. Vaughan, dean of the University of Michigan, Department of Medicine and Surgery, sent in a letter from the *Army and Navy Medical Record* which he had received in his official capacity at the university. Here is the letter; again the italics are ours:

"We are gratified to advise you that in our efforts to select a strictly ethical and high-grade institution of medicine that this *magazine could consistently indorse and recommend,* we have decided on the University of Michigan, Department of Medicine and Surgery, as the institution in your territory to whom our special publicity *concession* will be made this year.

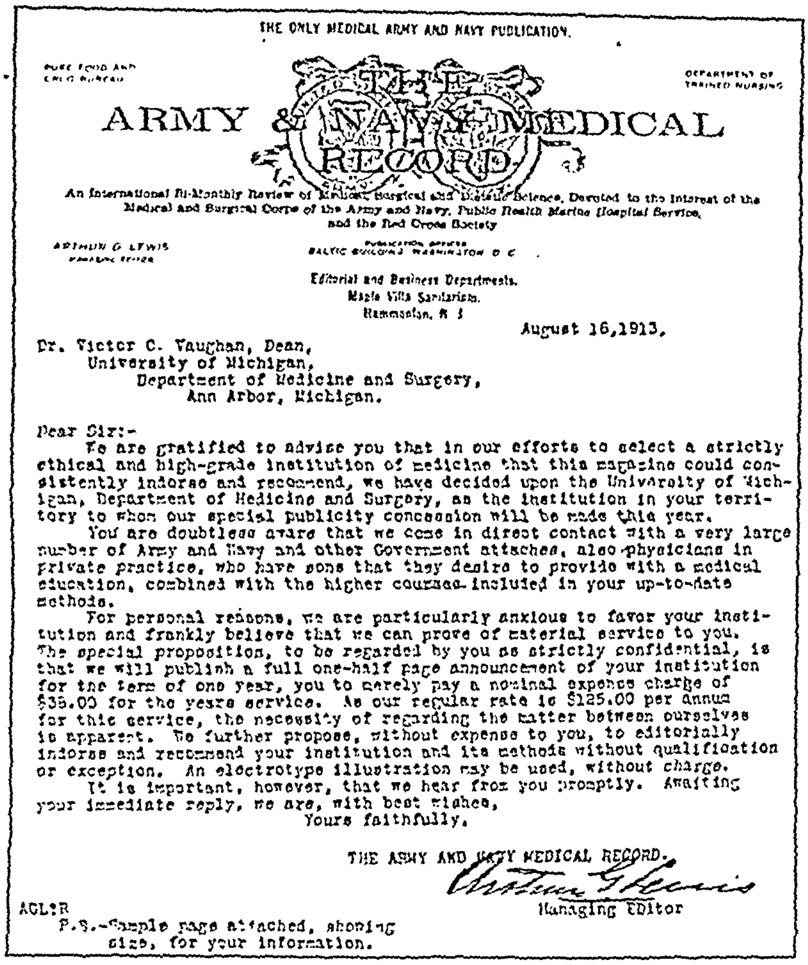
"You are doubtless aware that we come in direct contact with a *very large number of Army and Navy* and other government *attachés,* also physicians in private practice, who have sons that *they desire* to provide with a medical education, combined with the higher courses included in *your up-to-date methods.*

"For personal *reasons,* we are particularly anxious to favor *your* institution, and frankly believe that we can prove of material service *to you.* The *special proposition,* to be regarded *by you as* strictly confidential is that we will publish a full one-half page *announcement* of your *institution for the term* of one year, you to merely pay a nominal expense charge of $38 for the year's service. As our regular rate is $125 per *annum* for this service, *the necessity of regarding the matter between ourselves is apparent.* [Transparently so.—Ed.] We further propose, without expense to you, *to editorially indorse and recommend your* institution and its methods without qualification *or exception.* An electrotype illustration may be used, without charge.

"It is important, however, that we hear from you promptly Awaiting your immediate reply, we are, with best wishes,

"Yours faithfully,

"The Army and Navy Medical Record,
"Arthur G. Lewis, *Managing* Editor."



THE ONLY MEDICAL ARMY AND NAVY PUBLICATION.

PURE FOOD AND DRUG BUREAU

DEPARTMENT OF TRAINED NURSING

THE ARMY & NAVY MEDICAL RECORD

An International Bi-Monthly Review of Medical, Surgical and Dietetic Science, Devoted to the Interest of the Medical and Surgical Corps of the Army and Navy, Public Health Marine Hospital Service, and the Red Cross Society

ARTHUR G. LEWIS
MANAGING EDITOR

PUBLICATION OFFICES
BALTIC BUILDING WASHINGTON D C

Editorial and Business Departments,
Maple Villa Sanitarium,
Hammonton, N J

August 16,1913.

Dr. Victor C. Vaughan, Dean,
University of Michigan,
Department of Medicine and Surgery,
Ann Arbor, Michigan.

Dear Sir:-

We are gratified to advise you that in our efforts to select a strictly ethical and high-grade institution of medicine that this magazine could consistently indorse and recommend, we have decided upon the University of Michigan, Department of Medicine and Surgery, as the institution in your territory to whom our special publicity concession will be made this year.

You are doubtless aware that we come in direct contact with a very large number of Army and Navy and other Government attaches, also physicians in private practice, who have sons that they desire to provide with a medical education, combined with the higher courses included in your up-to-date methods.

For personal reasons, we are particularly anxious to favor your institution and frankly believe that we can prove of material service to you. The special proposition, to be regarded by you as strictly confidential, is that we will publish a full one-half page announcement of your institution for the term of one year, you to merely pay a nominal expense charge of $38.00 for the years service. As our regular rate is $125.00 per annum for this service, the necessity of regarding the matter between ourselves is apparent. We further propose, without expense to you, to editorially indorse and recommend your institution and its methods without qualification or exception. An electrotype illustration may be used, without charge.

It is important, however, that we hear from you promptly. Awaiting your immediate reply, we are, with best wishes,

Yours faithfully,

THE ARMY AND NAVY MEDICAL RECORD.
Arthur G Lewis
Managing Editor

AGL:R

P.S.-Sample page attached, showing size, for your information.

Photographic facsimile of a letter sent by the Army and Navy Medical Record to the dean of University of Michigan, Department of Medicine and Surgery, offering one hundred and twenty-five dollars' worth of advertising space for a "nominal" thirty-eight dollars—with editorial indorsements and recommendations thrown in for good measure!

Dr. Vaughan, in forwarding the matter to The Journal, wrote that on receipt of the offer just given, he "was uncertain whether its writer was a knave or a fool." After inquiring into the matter somewhat thoroughly, he *concluded that* "the managing editor of the *Army and Navy Medical Record* is both a knave and a fool."

THE ARMY AND NAVY MAGAZINE

The Journal had the *Army and Navy Medical Record* under investigation before these two letters were received and, as a result, the following facts seem to be pretty well substantiated. Herbert C. Lewis, with his brother, Arthur G., conducted from Washington, D. C., a publication called the *Army and Navy Magazine.* In The Journal's nostrum file there is a booklet put out by the Renova Distributing Company describing the wonderful virtues of its product, "Anti-Jag," which, as its name might intimate, is a "liquor cure" of the fake variety. One page of this booklet is given over to what purports to be "A Letter from a Great Magazine Editor." The letter is dated June 19, 1900, from Washington, D. C., and says that "the editor of the *Army and Navy Magazine* takes pleasure in stating that from his own personal knowledge he has found 'Anti-Jag' to be one of the most reliable medicines ever introduced for the permanent cure of drunkenness." And more to the same effect. The letter is signed "Herbert C. Lewis, editor."

The publishing offices of the *Army and Navy Magazine* are at 606 F Street, N. W., Washington, D. C. The building at this address is known as the Baltic Building. Herbert C. Lewis is said to be a printer by trade.

The *Army and Navy Medical Record* seems to have been started within the last few months by Arthur G. Lewis. It does business from two addresses, the Baltic Building, Washington, D. C., and the Maple Villa Sanitarium, Hammonton, N. J. Lewis is said to have purchased the Maple Villa Sanitarium recently, but apparently his chief source of income is the *Army and Navy Medical Record.* He is alleged to have claimed that some medical officials of the government are interested with him in this publication but that these officials do not wish their names known. We do not blame them.

ADVERTISEMENTS AS EDITORIALS

A glance through two issues of the *Army and Navy Medical Record* makes perfectly plain the character of the publication. The January-February, 1913, number leads off with articles by well-known medical officers in the Army, the Navy and the Public Health Service. These have been copied from other publications. Then comes an editorial entitled "A Much Needed Dietary Reform," devoted to the laudation of "Postum," the widely advertised coffee substitute. Following this is an editorial on "The Philosophy of Hypnotics" in which aconitine, saline laxative and digitalin are each given a "boost." Then comes an "original article" (save the mark!) entitled "The Physiological Pathology of Consumption." This is by "Alfred S. Gubb. M.D., L.R.C.P., London, M.R.C.S., Eng., D.P.H., etc. etc., Aix-les-Bains, Savoie, France." Two pages are devoted to this. The "joker" appears in the third paragraph from the end—Fellow's Syrup of Hypophosphites. Dioxogen receives more than three pages of editorial mention under the caption "The Sterilization of Milk with Dioxogen." Under "Another New Electrical Wonder—Magnified Sound," the "Acousticon" is given a two-and-a-quarter page write-up. "What Wise Men Wear" is the title of a four-page article—unsigned—devoted to the laudation of suspensories in general and the "O-P-C Suspensory" in particular. Dr. H. F. Boatman, Los Angeles, contributes a short article on "A Case of Advanced Pulmonic Tuberculosis Treated with Injections of Dioradin," while our good old friend Willard H. Morse, M.D., "F.S.Sc. (Lond.)," the champion fake-testimonial-giver of the country, writes more or less entertainingly on "Putting on a Mustard Plaster." The article has nothing to do with mustard plasters but has a good deal to do with "Zumota," a nostrum recommended as a substitute for the mustard plaster. These are but a few of the nostrums to which the editorial and reading pages of the *Army and Navy Medical Record* are devoted.

In the June-July issue, Arthur G. Lewis becomes bolder. The leading article is entitled "First Aid in the Navy," by C. F. Stokes, Surgeon-General, United States Navy. There is nothing to indicate that this article was not contributed to the *Army and Navy Medical Record* by its author. As a matter of fact, it originally appeared in an official publication, the *United States Naval Medical Bulletin* for January, 1913, and was reprinted by Lewis without credit and without permission. Following the article by Dr. Stokes is another, unsigned, entitled "The Passing of 'The Pie Habit.'" This describes the surprise of the students of Harvard University at being served breakfast cereals instead of pie at their noonday meal and suggests that "Shredded Wheat Biscuits" make a "delicious dessert." A two-and-a-half page article on the "Danger of Corrosive Sublimate in Vaginal Douche" is reprinted from the *Lancet-Clinic* of September, 1903. The reason for resurrecting this ten-year-old article becomes apparent before one gets half through it. It deals not so much with the danger of corrosive sublimate as with the marvelous—alleged—properties of Tyree's Antiseptic Powder. Dr. Claude C. Keeler, Denver, has a three-page article on the "Medical Treatment of Pulmonary Tuberculosis." The "medical treatment" referred to is Waterbury's Compound. An editorial entitled "One Notch Ahead of Morphin" is devoted to that vicious morphin solution sold under the proprietary name "Papine." Another on "The Treatment of Catarrh by Palliatives and Curatives" deals with a widely advertised "patent medicine." "Kondon's Catarrhal Jelly." What appears to be a contributed article by Charles Wardell Stiles of the United States Public Health Service on "Country Schools and Rural Sanitation" has really been "lifted" from an official *publication without* credit and, needless to say, without Dr. Stiles' permission.

But medicinal preparations are not the only things to which the *Army and Navy Medical Record* gives editorial indorsement. All advertising matter, apparently, is grist to its mill. Sandwiched in between articles on "Public Health Administrations" and "Important Army Medical Lectures" is a dissertation on "The Millennium of Shirt Construction," in which are sung the virtues of the tailless shirt! A little farther along the Hawaiian pineapple is extolled, while the last pages of the issue are devoted to various banking concerns.

In addition to the advertisements appearing throughout the reading and editorial pages of these two issues of the *Army and Navy Medical Record*, there are a number of display advertisements. There is no reason to suppose, at least in the majority of cases, that the advertisers had the slightest reason to suspect the nature of the *Army and Navy Medical Record*. Several pages are devoted to financial advertisements, there being more than forty banks that have "fallen for" the wiles of Arthur G. Lewis. In view of the letters received by the deans of medical colleges and other educational institutions, the display advertisements of schools and colleges have a special interest to physicians. Schools for girls, polytechnics, colleges of music, veterinary, dental and medical schools—all are to be found in this cosmopolitan publication.

Among the therapeutic products advertised—in the advertising pages—are:

Fellows' Syrup of Hypophosphites	1	cover page
Sherman's Bacterial Vaccines	1	page
Kondon's Catarrhal Jelly	½	page
Expurgo Anti-Diabetes	½	page
Laxol	½	page
Campho Phénique	½	page
Palpebrine	½	page
Zumota	½	page
Sanmetto	¼	page

While in the reading pages the following products are puffed:

Tyree's Antiseptic Powder.
Waterbury's Compound.
Papine
Kondon's Catarrhal Jelly.
Ranier Natural Soap.
Iodia (Battle).
Creo-Derma.
Fellows' Syrup of Hypophosphites.
Tannalbin.
Expurgo Anti-Diabetes.
Zumota.
Sulfothen.
Dioxogen.
Palpebrine.
Bannerman's Intravenous Solution.
Daniel's Concentrated Tincture of Passiflora.
Peacock's Bromides.
Aletris Cordial Rio.
Gonosan.
Digipuratum.
Dioradin.
Pepto-Fer.
Lactol.
Campho Phénique.

Summed up: The *Army and Navy Medical Record* is but another of the parasites of quackery. It is not entered as second-class matter and it has probably no bona-fide circulation. While it is claimed to be "Devoted to the Interest of the Medical and Surgical Corps of the Army and Navy, the Public Health Marine Hospital Service and the Red Cross Society" it is actually devoted to none of these. It *is* devoted to the exploitation of the advertising public for the special financial benefit of the man who calls himself its editor—Arthur G. Lewis. Advertising contracts are obtained under false and fraudulent pretenses. In brief, Arthur G. Lewis is using the good name of the various medical services of the United States government to further his swindling operations. He has written letters to honorable physicians making dishonest and insulting propositions to deceive and defraud the public. Editorial indorsements of the *Army and Navy Medical Record* mean nothing except that money has been paid for them. In short, the *Army and Navy Medical Record* is a fraud, and its "editor," Arthur G. Lewis, a faker.

Correspondence

The Parasite of Rabies

To the Editor:—The paper of Noguchi on the "Cultivation of the Parasite of Rabies (*Jour. Exper. Med.*, 1913, xviii, 314; abstr., The Journal A. M. A., Sept. 20, 1913, p. 993), has a special interest for the student of hydrophobia. Is the cause indeed a parasite, or is it, as Ferran supposed, a ferment? Are the Negri bodies parasites, or do they simply enclose an invisible germ, the true parasite, of which the Negri corpuscle is the outward and visible expression? This view, which is probably at present the most illuminating, is represented by two admired and popular authors, Babes, who regards the Negri inclusions as the reaction of the cell to the parasite, and Prowazek, who classifies the parasite among the *Chlamydozoa.*. Both the parasite and the Negri bodies have been connected by some writers with the *Protozoa;* but in view of the fact that the Negri corpuscles are too large to pass through a filter, as the true parasite does, and that bodies similar and in fact identical have been found in healthy panthers by Cornwall, and in the fresh brains of cats by Luzzani, it will be understood that not much help could be obtained from them by any one who desired to form a critical estimate of the morphology of the rabies germ.

Noguchi, who appears to think that it is a *protozoon*, presents his theory in a slight setting of practical circumstances. This does not mean that he finds absolute certainty in his results, but rather that he would render further experiments convincing by backing them with comprehensive details. In his cultures of "street," "fixed" and "passage" virus, he observed "very *minute* granular and somewhat coarser pleomorphic chromatoid bodies." In "fixed" virus he found "nucleated round or oval bodies surrounded with membranes totally different from the minuter granular bodies," though they occur in the same culture. "The center is nuclear and the membrane is distinct and highly refractive." By inoculating animals with cultures of the "granular, pleomorphic or nucleated bodies, rabies has been reproduced in dogs, rabbits and guinea-pigs." It is not easy, it *must* be confessed, to distinguish between these bodies, but his nucleated oval bodies, surrounded by a very refractive membrane, resemble in their morphology the protozoa rather than the bacteria.

From this point of view, the *present* work of Noguchi is less disentangled from the early work of Pasteur, Roux, Memmo, Babes, Bruschettini, Grigorjew, and Rivolta than could be wished, for it is *constructed* on lines similar to theirs and Busila's. (*Compt. rend. Soc. de biol.*, July 31, 1908.) Busila's work, in fact, gives a foretaste of what may come, and is worth an attentive study, though it illustrates the limitations rather than the powers of the experimenter. He was able to find in the nerve centers and in the cerebrospinal fluid of animals infected with "fixed" virus a motile, sporing bacterium which grew on ordinary mediums, stained with Gram, and lived through 250 generations without losing its virulence. Cultures of this organism were first heated to 110 and subsequently injected into guinea-pigs, rabbits and dogs. The animals became rabid and their brains showed Negri bodies, but the most remarkable circumstance was the period of incubation, which was exactly what it ought to be after a genuine infection, being from seven to fifteen days after cerebral inoculation, and from fifteen days to three months after inoculation under the skin. Moreover, the brains of these animals produced rabies, which is certainly a point of primary importance.

Unfortunately, it is impossible to read these results with conviction. To Babes, who reviewed them without success, they seemed opposed to all our notions of the nature of infectious diseases ("Traité de la rage," p. 255). He could not confirm them. As an experiment in bacteriology, there is in their favor this fact, that they give a hint of the difficulties of the subject, of the difficulty under which all investigation has labored from the time when Hallier discovered in the blood of rabid animals his *Lyssophyton suspectum* (*Ztschr. f. Parasitenkunde*, 1869, i, 301), or Memmo his *Blastomycetes*, or Pasteur his granules. Others, too, have associated rabies with bacterium, as, for example, Mottet and Protopopoff (*Russk. 'atch.*, 1887, viii), who found a microbe which grew on ordinary mediums which produced paralytic rabies in animals. Though these experiments are interesting and curious, they are not convincing, and, moreover, they have failed to evolve the superb technic that will be indispensable to the man who is to isolate the true germ of rabies. It is probable that we have now passed through the crude phase of this investigation. The contribution of Noguchi is perhaps the nearest approach to the solution of the problem, unless the recent researches made by Luzzani (*Pathologica*, 1912-1913, v, 253) and Andreyewsky (*Sbornik. rabot. v. pam. I. M. Sadovskavo*, 1912, ii, 68) have attained the absolute solution.

Paul Bartholow, M.D., New York.

Comment on Sex Hygiene

To the Editor:—Your summary of newspaper comments on the problem of instruction in sex hygiene (Medical Economies, The Journal, Oct. 18, 1913, p. 1477), shows that we are one step ahead of the former generation—we recognize generally that it is a problem. It would be well, however, for the reformer, physician or layman, to recognize several other facts. In the first place, the greatest obstacle to the proper handling of the subject lies in the home. From my experience with large numbers of boys in private schools I know that the average boy of this type has, up to the age of 14 at least, no correct idea of sexual anatomy or physiology, while the public-school boy, though usually more wise, obtains his wisdom from a dangerous source. I have known many boys to whom another boy naked is a pleasing curiosity, while but very few know how animals propagate. This ignorance is of course due to the prudish reticence of the parents, and the curse of it is that the child of to-day is no further advanced than were the children of former generations. To say then that this question should be left to the home is to drop the matter entirely. We cannot expect aid from the very source which is presenting the obstacle.

It is therefore clear that it is up to the schools as the only organized medium available. But it is also plain that to make a sudden jump from the reticence of the home on all matters pertaining to sex to a direct discussion of sex hygiene in the schools would be as dangerous to the child as it would be abhorrent to the parent. If we could only stop crying reform, stop the warring between the sentiment surrounding innocence and the excitement over the moral results of ignorance, and treat the question from the point of view of educational science, the matter would be simple. Give the children more natural science taught by competent teachers—botany to the youngest, biology to the older ones, and anatomy and physiology to those of 10 or 12. The sexual side should not be emphasized but taken as a matter of course. With this foundation the teaching of sexual questions as such would cease to be a nightmare to parents or a side-show to children. Most important of all, we might reasonably hope that from such a course of study the parents of the next generation, who are the children of to-day, will treat the whole matter rationally, will make their children feel that the truths of sex are not an awful thing of mystery and shame that will be revealed some time in the dim future, but, like the working of the bowels, are things of great interest and importance, though they are not to be discussed at the dinner-table.

I have known boys who were fortunate enough to be brought up in homes in which they received proper instruction and explanation, and their true modesty and frank understanding of things sexual were distinctly refreshing after the prudery and morbid curiosity which are perfectly natural in the ignorant child.

W. B. H., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACQUIRED IMMUNITY TO SMALL-POX

To the Editor:—1. Can acquired immunity to small-pox be transmitted to the offspring?

2. Does small-pox protect against bovine vaccination?

The following examples will bring out the reasons for the preceding questions:

Family A.—Five in the family, father previously vaccinated, mother unvaccinated, children exposed. One child had preliminary symptoms followed by slight eruption consisting of few pimples, one or two of which were pustular. Eruption lasted about a week, child not sick. The father and children were vaccinated at the same time. All four vaccinations were unsuccessful. Mother refused vaccination. No other cases in this family.

Family B.—Five members. Father previously vaccinated successfully when a child, also four or five times since without result. Children exposed. Mother and the three children were vaccinated. In two of the children vaccination was unsuccessful, also when repeated.

Family C.—Six members. Father previously vaccinated successfully when a child, also four times since without result. Mother has been vaccinated four times without result. Mother and four children vaccinated; two of the children without result; vaccination repeated on these two without result. This makes the third time for one of the children without effect.

Family D.—Seven members. Given as a control. All vaccinated, six successfully.

Robert P. Stark, M.D., Allegan, Mich.

Answer.—1. Many cases seem to indicate the possibility of the transmission of immunity to small-pox, but the phenomenon is quite exceptional.

2. Yes.

CONTRACTURE OF FINGERS IN HEMIPLEGIA

To the Editor:—1. Would the lengthening of the flexor tendons of the fingers in a case of hemiplegia of a year's standing in which the flexors overbalance the extensors be a procedure of much hope? The hand, when extended on the wrist, causes the flexion of the fingers into the palm. The joints are still seemingly normal. The power of flexion is good, but the patient cannot open his hand enough to grasp any large object well.

2. Do the tendons of the fingers unite when severed, like the Achilles tendon?

3. Would a lengthening operation or a division be the better?

4. Would there be any great danger of infection if no silk, for instance, were left in?

W. E. B., M.D.

Answer.—1. We do not think that lengthening of the flexor tendons of the fingers in a case of hemiplegia would be of any use in overcoming the contracture, due to paralysis. If there were no paralysis present the tendons could be lengthened with good result.

2. Tendons of the fingers unite when severed the same as other tendons, provided they are properly cared for.

3. If an operation were advisable it would be better to lengthen the tendons rather than divide them, as the retraction after simple division is too great and union might fail on account of wide separation of the ends.

4. The best material for suturing or lengthening tendons is silk. The silk should be prepared according to Lange's method, which consists in boiling it in 1:1,000 mercuric chlorid solution. Such silk would remain indefinitely without danger of infection, provided the operation was aseptically done.

DIFFERENCE BETWEEN HEREDITARY AND CONGENITAL SYPHILIS

To the Editor:—What is the essential difference between hereditary and congenital syphilis? W. R. A., Lincoln, Neb.

ANSWER.—The terms are used interchangeably to indicate the condition of syphilitic infection manifest at birth. Syphilitic disease might be latent in the infant at birth, and developing subsequently could not be called congenital, but it would still be hereditary. Some would go so far as to say that syphilis cannot be hereditary on the assumption that no disease can be inherited. This is an unproved assumption which it would be unprofitable to discuss. We may say at least that it is still generally assumed that diseases can be inherited or transmitted from parent to child, and the important question is whether syphilis can be so transmitted. The discovery of the *Spirochaeta pallida* has made it possible to explain the way in which this transmission can be brought about. Experimental observations show that the semen may contain the spirochetes and hence the disease may be directly transmitted from the father to the fetus in conception. The mother may transmit the disease either by the presence of the germs in the ovum or by infection of the placenta, or the passage of the spirochetes from the blood of the mother to the blood of the fetus. The mother may herself become infected from the fetus, although the proof of this occurrence is not positive. The long period of latency during which the germs of inherited syphilis sometimes lie dormant lend some support to the hereditary character of those cases which have been observed in the third generation.

WORKS ON HELMINTHOLOGY

To the Editor:—What are some of the best and recent works on intestinal parasites, or helminthology? Did not Loos write an exhaustive treatise on this subject? If so, where can it be obtained? W. H. H., Deridder, La.

ANSWER.—The following works may be referred to. We are unable to find any record of a book written by Loos on this subject.

Braun, M.: Animal Parasites in Man. Wood. Price, $5.
Braun and Luhe: Practical Parasitology, Wood. Price, $3.50.
Welter, Carl: Ein Fall von Balantidium Coli im Darmkanal des Menschen. Bonn, Ludwig, 1912.
Stiles, C. W., and Garrison, P. E.: A Statistical Study of the Prevalence of [illegible] Man, *Hyg. Lab. Bull.*, 28.
Stiles, C. W.: A [illegible] the Intestinal Parasites of Five Hundred [illegible] at the U. S. Government Hospital for the Insane. *Hyg. Lab. Bull.*, 13. (Cannot be obtained from government.)
Stiles, C. W.: Illustrated Key to the Trematode Parasites of Man, *Hyg. Lab. Bull.*, 17. (Cannot be obtained from government.)
Stiles, C. W., and Hassall, A.: Trematoda and Trematode Diseases, Index-Catalogue of Medical and Veterinary Zoology, *Hyg. Lab. Bull.*, 37. (Can be obtained from Superintendent of Documents, Government Printing Office, Washington.)
Stiles, C. W., and Hassall, A.: Cestoda and Cestodana, Index-Catalogue of Medical and Veterinary Zoology *Hyg. Lab. Bull.*, 85. (Address the Surgeon-General, U. S. Public Health Service, Washington, D. C., for this.)

Bulletins which cannot be obtained from the government may perhaps be found at medical libraries.

MINE CONDITIONS DELETERIOUS TO THE RESPIRATORY SYSTEM

To the Editor:—Please refer me to literature on mine conditions (gases, dust, etc.) deleterious to the respiratory system.
A. M. GIDDINGS, Crosby, Wyo.

ANSWER.—The following may be referred to:

Oliver, T.: Dangerous Trades. New York, Dutton. Price, $8.
Systematic Prevention of Mine Accidents, THE JOURNAL, Current Comment, April 5, 1913, p. 1081.
Committee on Resuscitation from Mine Gases, THE JOURNAL, Proceedings of Minneapolis Session, June 21, 1913, p. 2002.
Sommerfeldt, T.: Danger from Explosion of Gases in Mining, *Norsk Mag. f. Laegeridensk.*, February, 1913; abstr. in THE JOURNAL, March 15, 1913, p. 874.
Oliver, T.: Dust and Fumes, the Foes of Industry, THE JOURNAL, Society Proceedings, Oct. 5, 1912, p. 1315.
Lindemann, W.: Accidents and Diseases of Miners and Tunnel Workers, THE JOURNAL, Society Proceedings, Oct. 5, 1912, p. 1315.
Haynes, J. R.: Death in Mines of America Reasons for a Federal Commission, *South. California Pract.*, January, 1912.

Further information may be obtained by communicating with the American Mine Safety Association, Pittsburgh, Pa., and the American Association for Labor Legislation, 1 Madison Avenue, New York City.

FIBROLYSIN

To the Editor:—Please give me any information that you may have on fibrolysin. S. L. W.

ANSWER.—Fibrolysin is a name given to a solution of thiosinamin sodium salicylate, and is described in N. N. R., page 258. This substance, it is claimed, has the power of causing the absorption of cicatricial tissues. It has been used for the removal of cicatrices resulting from burns, etc. In some cases it has seemed to be quite successful, although there have been numerous failures.

CORRECTION OF ALGEBRAIC EXPRESSION

To the Editor:—In THE JOURNAL of Sept. 27, 1913, page 1134, second column, second paragraph, fifth line, should not $\sqrt{r^{12}-y^2}$ read $\sqrt{r'^2-y^2}$? J. A. BACHER, M.D., San Jose, Cal.

ANSWER.—Our correspondent is correct, and the latter notation is the right one.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

AN IMPOSSIBLE PROPOSAL

Hon. T. L. Reilly, member of congress from Connecticut, has introduced the following in the House of Representatives:

A bill to create a United States Medical Licensing Board.

Be it enacted by the Senate and House of Representatives of the United States of America in congress assembled, that the president be, and he is hereby, authorized and directed to appoint two medical officers of the United States Army, with a rank of a captain and a major; two medical officers of the United States Navy, with rank of lieutenant and lieutenant commander; and two medical officers of the United States Marine Hospital Corps, with rank of lieutenant and lieutenant commander, to a board to be known as the United States Medical Licensing Board.

SEC. 2. That the terms of the members of the board to be four years each, and the salary of each member thereof to be $4,000 per annum with mileage. Said board shall be in continuous session at Washington when not on duty in various states.

SEC. 3. That all regular licensed medical practitioners of medicine, now holders of a medical diploma and a state license permitting them to practice in the respective states, shall upon the passage of this Act by presenting to said board their medical diploma, their state medical license, and any other diplomas they may have, and upon the payment of the sum of $2 be given a United States license which will permit them to practice their profession of medicine in any state or territory of the United States and its possessions.

SEC. 4. That the United States Licensing Board shall hold its meetings in various cities of the United States and shall examine all newly graduated medical doctors so that they may obtain a United States license, which license will permit them to practice medicine or surgery in any state or territory of the United States and its possessions without any further examination: *Provided*, That the candidate for said license shall fulfill all the requirements of the American Medical Association and shall be an American citizen and present a high-school certificate or its equivalent and shall have a doctor of medicine diploma from a medical college in good standing, as declared by the American Medical Association, and upon the payment of $10 and the filing of certificates of good moral character shall be admitted to examination and upon the passage of said examination shall be granted a United States license, which will permit the holder to practice medicine and surgery in any state or territory of the United States and its possessions.

SEC. 5. That the license may be revoked in case abortions or other unprofessional and criminal acts are performed.

Without questioning the sincerity or good intentions of the introducer of this measure, it must be recognized that the provisions contained in Mr. Reilly's bill are entirely impracticable. In any other nation national regulation of the practice of medicine might not only be considered, but in practically every other civilized nation such national control is in effect. In the United States, however, the regulation of the practice of medicine comes under the police power of the state, and is consequently, under the jurisdiction of state legislatures and not under that of congress. This is a fundamental fact, which has been recognized by all law-making bodies and by all courts, from the United States Supreme Court down. The consideration of any measure by congress, providing for the regulation of the practice of medicine in the states by any federal board, is, therefore, simply a waste of time, as any such measure, even if adopted, would be declared unconstitutional as soon as it came into court.

Aside from this objection, which is, of course, fatal to the bill, criticism might be made of the provision limiting the appointment of members to officers of the government services. A more serious objection, however, is the loose phraseology in Section 4, providing that "the candidate for said license shall fulfill all the requirements of the American Medical Association." There are no specifications as to what requirements are referred to. Certainly, the provision by which an examining board would delegate the formulating of specifications for licenses to a voluntary organization would be most unwise. A similar objection would lie against the provision that recognized medical colleges should be limited to those approved by the American Medical Association. The provision requiring only a high-school certificate for admission is hardly in harmony with the present effort to raise the educational standards of medical schools. Section 5 provides for the revocation of licenses in cases of "unprofessional" acts; but does not specify what acts shall be considered "unprofessional." These criticisms, however, are superfluous, as the provision for federal jurisdiction over the practice of medicine in the various states is essentially unconstitutional, and, consequently, any such bill as that proposed by Mr. Reilly is a legal impossibility. This bill, which deals with an important social problem, was referred to the House Committee on Military Affairs. Such a reference is ridiculous, and only emphasizes the shortcomings of the system of committees in the house and the need of a Committee on Public Health.

THE PRESENT LEGAL STATUS OF OSTEOPATHY

Attention has been called to an error in the issue of The Journal for September 20, 1913, p. 981. In the article on "The Present Legal Status of Osteopathy," New Hampshire is listed among those states having separate osteopathic boards of examiners. This is incorrect, as a reference to the law will show. The medical practice act of New Hampshire stipulates that its provisions shall not apply to "persons practicing . . massage . . . or any other method of healing if no drugs are employed or surgical operations are performed; provided that such persons do not violate any of the provisions of this act in relation to the use of M.D. or the title of doctor or physician" (Act of 1897, Section 11, as amended by Ch. 1. Session Laws, 1903).

In the same article under the subtitle, "Is Osteopathy the Practice of Medicine?" the several states were listed in accordance with judicial and statutory interpretation of the term "practice of medicine." Under this arrangement, Kentucky was placed among those states which hold osteopathy to be not the practice of medicine. This was on the authority of the decision in Nelson *v.* State, 108 Ky. 769, 50 L. R. A. 383. That case, however, has been negatived by statutory amendment which provides that the words "practice of medicine" in this act shall be held to include the practice of osteopathy. But no such persons may practice without a diploma and they are forbidden "to administer drugs or to perform surgical operations with the knife." This is in accordance with the act of 1904, Section 6.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stuart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

Connecticut: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Florida: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

Louisiana: New Orleans, October 27-29. Sec., Dr. A. B. Brown, 34 Cusachs Building; Homeopathic, 702 Macheca Bldg., New Orleans, November 3. Sec., Dr. Edward Harper, New Orleans.

Maine: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

Mississippi: Jackson, October 28-29. Sec., Dr. E. H. Galloway, Jackson.

Nebraska: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

Nevada: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

South Carolina: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

Texas: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

West Virginia: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

Higher Standards in Michigan

Official word has just been received that, at a recent meeting, the Michigan State Board of Registration in Medicine adopted a resolution increasing the requirement of preliminary education, of those seeking licenses to practice medicine in that state, to one year of collegiate work in addition to a four-year high-school education. The additional year is to include college courses in physics, chemistry, biology and a modern language. This is the fourteenth state in which one or two years of collegiate work now constitutes the minimum preliminary requirement. The complete list follows:

State Licensing Board of	No. of Years Required	Affecting Students Matriculating	Affecting All Applicants
Minnesota	2	1908-09	1912
North Dakota	2	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914
Utah	1	1910-11	1914
Iowa	2	1911-12	1915
South Dakota	2	1911-12	1915
Vermont	1	1912-13	1916
Pennsylvania	1	1913-14	1917
Kentucky	2	1914-15	1918
Michigan	1	1914-15	1918
California	1	1915-16	1919

CHIEF NEEDS FOR AND FUNCTIONS OF THE FEDERATION OF STATE MEDICAL BOARDS*

N. P. Colwell, M.D.

Secretary of the Council on Medical Education of the American Medical Association

In every country having a standing comparable with that of the United States, the national government, through one or more bureaus, has always kept direct or close control of educational institutions and of the licensing of physicians. As a consequence these matters have always been systematically looked after, medical schools have never been separated from universities, and there never has been the chance for irregular or low-grade institutions calling themselves medical colleges, to gain a foothold; therefore, such institutions have never been known. Every medical college as a rule is the medical department of a government-owned or controlled university, so has always been conducted on the same high plane as other educational institutions. Again, the licensing of physicians seems to have always been in the hands of thoroughly competent officials who have in charge such matters for the entire nation, so if a candidate does not present proper credentials, or if he fails to pass the required examinations, he simply cannot procure a license to practice in any part of the country. He must make up his deficiencies or not secure his license.

---

* From the *Quarterly* of the Federation of State Medical Boards of the United States, October, 1913, p. 20.

CONTROL IN THE UNITED STATES

In the United States, on the contrary, the national government assumes no responsibility regarding either education or the licensing of physicians, these matters having been left by the Constitution to the individual states—a responsibility the importance of which even to-day has not been fully realized or fully assumed by many if not by the majority of states. In our forty-nine states there are forty-nine different medical practice acts which, for their enforcement, have been placed in the hands of sixty-two different boards, sometimes two or three to a state! To make the matter still more serious, in seventeen states there are also separate boards having entire authority over osteopaths—an arrangement which doubtless protects them in practicing as they see fit, including surgery and the administration of drugs!

EVILS DUE TO THIS CONFUSION

Is there any wonder, with this confusion, that bogus and low-grade medical schools and schools for every fad in the category grew up like toadstools? Is it a wonder that these heterodox institutions have flooded the country with half-baked, illiterate and incompetent "doctors," who, even though they may have been rejected by one state fortunate enough to have a good law administered by a good board, easily secure licenses in some other state—or if persistent, or if possessing a sufficiently strong political pull, finally succeed in securing a right to prey on the people of the very state where they were rejected in spite of the efforts of the state's valiant defenders?

Through this confusion also we see notorious quacks, abortionists, spurious patent medicine venders and other undesirables finally, if not easily, securing the right to carry on their nefarious practices in some state or other even though they may have been rejected or have had their licenses revoked in one or more other states! Or, even after they have had their licenses revoked by some strong board we sometimes see them brazenly continuing to practice, made immune to prosecution through political affiliations, thus snapping their fingers at the only safeguard the state has placed between the public and these vandals. The protection of the public against such evils *from a national standpoint* is practically a farce and the conditions would be laughable were they not so exceedingly serious. We have very often heard it stated — which is a fact — that the control of these matters "has been left to the police-powers of the various states." True, but how are these "police-powers" working out? States could be named which have established no "police-power" worthy the name, or which permit conditions to exist which are practically intolerable. Many still have ineffective laws and some have fair laws but incompetent political favorites to enforce them, and as a consequence the public have no safeguards; other states have fair laws except that two or three separate boards have been established to carry out their provisions, consequently either all boards are "easy" with their respective followings or serious discriminations result. Even some of the states having the best practice acts for regulating the licensing of physicians have inconsistently provided separate boards for osteopaths (often self-styled "osteopathic physicians").

ONE EDUCATIONAL STANDARD NEEDED

Meanwhile, when are we going to learn—when are our legislators going to learn, that before any method of "healing" can be safely applied to a sick or suffering human being, the "practitioner" must be sufficiently well educated to make a diagnosis, to *know* what disease he is attempting to treat and to *know* whether his particular "specialty" is the one to be used or whether it is the very one most dangerous to the patient? When is the fact going to be recognized that one standard—an educational standard—should be applied *to every* practitioner of the healing art regardless of the particular "system" of treatment he may represent? In fact, the whole mess of fads, diploma mills, low-grade colleges, quacks, impostors and the like never could have been, or could easily have been nipped in the bud had it not been for the politics-ridden and ineffective "police-powers" in many of the states. Take the very best conditions existing in any state and even then the safeguards are less effective than in most European countries. On the other hand, they should be even more effective because of the general confusion in control of these matters throughout the country. I have said "less effective than in most European countries" advisedly. Germany, for example, requires the candidate to have been trained in one of the governmental university medical schools and then requires the passing of an examination unusually severe. Again, I believe it will be acknowledged that in no state is the examination of candidates for license as searching and thorough as that given by the Conjoint Board of England, so ably outlined two years ago by Mr. Frederick G. Hallett, the secretary of the board. The examinations as usually given in this country still lack the searching laboratory and clinical tests which really permit a graduate of a medical school with adequate laboratory and clinical facilities to show his superiority over the candidate trained by the memorizing methods of the low-grade colleges which lack essential equipment. True, some boards have made a beginning, nevertheless almost every candidate, including graduates from some seriously low-grade colleges, succeeds in passing the examination. Of the candidates examined by the Conjoint Board of England there are almost always as many as 28 to 35 per cent. who fail.

STATE BOARD MEMBERS THE GREATEST HOPE

These statements must not for an instant be taken as a reflection on the officers of our state medical licensing boards, many of whom have striven valiantly against almost insurmountable obstacles to do their full duty. On the contrary it is these men above all who have recognized and are familiar with the conditions to which allusion has been made. It is to the men on our state licensing boards chiefly that the nation must look for better safeguards against the evils enumerated. Meanwhile, improvements have been going on for twenty years or more; conditions have been much worse. There is no better place to pay a most deserved tribute to one state board secretary, who, during the twelve years from 1878 to 1890, did more to raise the standards of medical education and medical licensure than any other man of his time. He likewise exposed and caused the closure of some fifty or sixty diploma-mills which prior to that time were having free rein. His reports, furthermore, constitute the most reliable account of medical colleges existing during and prior to his time. I refer to Dr. John H. Rauch, one-time secretary of the Illinois State Board of Health. Other state board officials could be mentioned who, without adequate pay, and facing opposition from the very persons from whom support was expected, carried on vigorous and effective campaigns in the interest of the public. Even though this is a dark picture, it is no more dark than could be drawn regarding the ineffective control of other matters, commercial and otherwise, which are due to our complex and politically-influenced city and state "police-powers." The important thing is for medical men and especially those on state boards to recognize the defects in connection with these medical matters, take stock of the hindrances, and all together, through the Federation of State Medical Boards and other agencies working toward the same end, press the campaign for betterment.

SOME OF THE REASONS FOR THE PRESENT CONDITIONS

Briefly stated, the causes for the present complexity of conditions, speaking from the national standpoint, are as follows:

1. Instead of one controlling factor there are sixty-two boards, each of which has no legal connection with, or responsibility for, the work of the other sixty-one boards.

2. These boards are hampered in many respects, varying with different boards, such as by (*a*) poor laws, (*b*) bad

politics, (*c*) unskilled board members, (*d*) conflicting boards, (*e*) lack of provision for skilled examiners, (*f*) lack of full-time officials, (*g*) lack of ample funds with which to do things, and (*h*) lack of ample authority to do what is needed.

3. Lack of direct control of the chartering of new colleges.

4. Difficulty (formerly) of securing accurate knowledge of conditions underlying medical education and licensure in different sections of the country, and again the lack of officers, time and money which would permit of wholesale campaigns of investigation such as have been voluntarily carried on by the American Medical Association through its Council on Medical Education.

Note: Even if each board had possessed all that was needed for such tours of inspection, it is a question whether such work conducted by all boards individually would be desirable. It would be poor economy, be an awful nuisance to the medical colleges thus inspected and—worse yet—could only result in a multiplicity of conflicting standards.

5. Lack of information regarding what other state boards are doing. All states are not warned against quacks, charlatans or other undesirables to whom licenses are refused by one state, nor do they as a rule learn the fact if one state revokes a license for unprofessional conduct. All boards should be informed of such matters. Here is a suggestion for the new State Board *Quarterly*.

6. Lack of money, means or skill to conduct examinations which will bring out the applicant's real training instead of his being merely able to memorize book knowledge.[1]

We have, therefore, viewing the situation from the national standpoint, a very complex system with sixty-two different boards, having no legal cohesiveness, and each having the final word in its own district. There is no central authority over these boards, and at present there is no strong influence by which they can be brought to work in harmony for the best welfare of this great country, for uniformly high standards and for equally effective methods of examination and licensure. It is working along these lines that the Federation of State Medical Boards can do the greatest good.

WHAT THE FEDERATION OF STATE BOARDS SHOULD BE

(*a*) A moral force standing above the individual boards, supporting the good work being done and extending knowledge of proved methods to other boards.

(*b*) A moral force tending to unify the efforts of all boards, thereby securing a better enforcement of laws now existing, and urging better laws in states where such are needed.

(*c*) An influence toward a rapid extension of reciprocity in medical licensure.

(*d*) An organization through which impostors, incompetents or other undesirable practitioners can be prevented from securing the right to prey on the public in any state.

(*e*) An organization which will influence the general adoption of a single and fair educational standard for measuring all candidates for the license to practice the healing art by whatever form of treatment.

(*f*) An organization which will be in position to solve the problem of providing a single examination which will be so thorough as to command recognition by all state boards, along the lines of the Conjoint Board of England or the new Dominion Examination just provided for in Canada.

(*g*) An organization to study the needs of various boards and through publicity to help secure those needs; *not to usurp the authority of the individual state boards but to secure the cooperation of all boards, by which such authority may be made more effective.*

The greatest work of the Federation will be to secure complete protection of the people of the entire country against those who are not properly trained in the medical sciences, where now, although some parts of the country may be protected, other vital parts are seriously exposed.

The present confusion and ineffectiveness in the control of medical licensure and medical education, even as does the confusion existing in divorce laws, in commercial matters and in other departments of public life, sometimes lead one to despair of the future of the form of government in the United States, the land of the free, where there is too little control over the lawless elements, who always abuse the liberties given to them.

The medical situation demands the unifying and correlative influence of an organization national in its scope, and in work along this line is the Federation's great opportunity.

---

[1] Many state laws prohibit teachers in medical colleges from being members of the licensing boards; nevertheless they are the most skilled examiners. Could they not be called into service by a similar plan to that used by the Conjoint Board of England? (See A. M. A. Bulletin, March 15, 1912, p. 160.)

Book Notices

HIMSELF. Talks with Men Concerning Themselves. By E. B. Lowry, M.D., and Richard J. Lambert, M.D., Cloth. Price, $1 net. Pp. 193. Forbes & Co., 1912.

SEX EDUCATION. By Ira S. Wile, M.S., M.D. Cloth. Price, $1 net. Pp. 150. New York: Duffield & Co., 1912.

THE THREE GIFTS OF LIFE. A Girl's Responsibility for Race Progress. By Nellie M. Smith, A.M., Lecturer for the Society of Sanitary and Moral Prophylaxis. New York, with an Introduction by Thomas Denison Wood, A.M., M.D., Professor of Physical Education, Columbia University. Cloth. Price, $0.50 net. Pp. 138. New York: Dodd, Mead & Co., 1913.

HEALTH AND HAPPINESS. A Message to Girls. By Eliza M. Mosher, M.D., Lecturer on Special Anatomy, Physiology and Hygiene for Women, Chautauqua School of Physical Education. Cloth. Price, $1 net. Pp. 203, with illustrations. New York: Funk & Wagnalls Company, 1912.

INSTEAD OF "WILD OATS." A Little Book for the Youth of Eighteen and Over. By Winfield Scott Hall, Professor of Physiology, Northwestern University Medical School. With a Foreword by Edward Bok. The Edward Bok Books of Self-Knowledge for Young People and Parents, of Which This is Number Three. Cloth. Price, $0.25 net. Pp. 62. New York: Fleming H. Revell Company, 1912.

HOW SHALL I TELL MY CHILD? By Mrs. Woodallen Chapman. With a Foreword by Edward Bok. The Edward Bok Books of Self-Knowledge for Young People and Parents, of Which This is Number One. Cloth. Price, $0.25 net. Pp. 62. New York: Fleming H. Revell Company, 1912.

The growing interest in sex hygiene is well illustrated by the increasing number of books on the subject which are being offered to parents, schoolteachers, and even to children themselves. The group above is typical.

"Himself," by Dr. Lowry and Dr. Lambert, is one of a series of books for different ages and classes. This one is a talk with men concerning themselves. It covers a wide range of topics, including not only the usual subjects treating on sex hygiene, but also such questions as the limitation of offspring, sterilization of the unfit, medical fakes and how to defer old age.

"Sex Education," by Dr. Wile, is written for the assistance of parents and to suggest a plan for parental instruction of children.

Mrs. Smith's book, "The Three Gifts of Life," is addressed directly to girls themselves, leading the young readers by introductory chapters on plant and animal life up to a discussion of human life and its reproduction.

"Health and Happiness, a Message to Girls" by Dr. Mosher, is in the form of a series of letters and covers not only sex hygiene, but many other questions of interest to young girls. The chapters on the care of the skin and hair and the discussion of clothing ought to help in counteracting the influence of the everywhere prevalent "beauty column."

"Instead of Wild Oats" and "How Shall I Tell My Child" are parts of the Edward Bok series, the first being written for boys of eighteen and over and the second for parents.

The essential facts in sex hygiene are few and comparatively simple. The entire value of any book or pamphlet on this subject depends on the manner of presentation and the scientific accuracy of the statements. The growing tendency of all of this literature is to abandon the sensational and unscientific statements which characterized the early stages of this crusade and to appeal to the reason and the higher instincts rather than to fear. In this particular, the quality of these books from a pedagogic standpoint has improved enormously of late years. A few years ago the question was, "Where can I find something suitable?" To-day the question is to choose from the amount of literature offered. Any of the books listed above can be safely recommended for the purpose for which they are intended.

Human Physiology. By Prof. Luigi Luciani, Director of the Physiologic Institute of the Royal University of Rome. Translated by Francis A. Welby. Edited by Dr. M. Camis, with a Preface by J. N. Langley, F.R.S., Professor of Physiology in the University of Cambridge. In Four Volumes. Volumes One and Two. Cloth. Price, $5.25 each. New York: The Macmillan Company, 1913.

This extensive work, which has run through a number of editions in the Italian and which has been translated into several languages, has not heretofore appeared in English. The first volume covers the subjects of circulation and respiration, the second volume internal secretion, digestion, excretion and the skin. The book states conclusions from physiologic research and also enters largely into the history and the literature regarding them. The attitude of the author in regard to the phenomena of life, in contrast to that of some of the German physiologists, is stated as follows: "No sincere worker in the positive or scientific direction can deny that the specifically vital somatic phenomena, i. e., those by which living beings are differentiated from inorganic bodies, are inexplicable by the known laws of chemistry and physics, and . . . are altogether remote from mechanical explanation." An interesting feature of the book is the assertion of the author that to Cesalpinus rather than to Harvey is to be given the credit for the discovery of the circulation of the blood. The author also disputes the theory of the hormones as expounded by Bayliss and Starling, with regard both to digestion and the theory of fetal hormones. The discussions of physiologic phenomena throughout are brilliant and informing. The progress of research in the chemistry of digestion and in the internal secretions is so rapid nowadays that, as might be supposed, the work does not include theories and findings of the past two or three years, which would undoubtedly cause the author to modify some of his statements. In the chapters on digestion, the movement of the stomach and intestines, as revealed by recent research with the Roentgen ray, are not touched on. Likewise the more recent work on the physiology of the hypophysis is not considered and the author concludes that the functions of the hypophysis are not known.

Throughout the book the work of the Italian physiologists is perhaps naturally emphasized. The work of the German physiologists is necessarily given abundant consideration, but that of English and American physiologists, with the exception of Bayliss and Starling, is scarcely referred to. The work is well translated and is a valuable addition to the works on physiology available in the English.

Blood-Pressure from the Clinical Standpoint. By Francis Ashley Faught, M.D., Instructor in Medicine at the Medico-Chirurgical College, Philadelphia. Cloth. Price, $3 net. Pp. 281, with illustrations. Philadelphia: W. B. Saunders Company, 1913.

This book is written from the clinical standpoint. Comparatively little space is taken for the instruments and instrumental technic. The bulk of the work discusses the variations in blood-pressure and the conditions which cause them. The relations of blood-pressure to various diseases is discussed at considerable length. Therapeutics receives its full share of attention. The relative inefficiency of various drugs which have been heretofore relied on to increase the blood-pressure is clearly presented. The past generation of physicians were well convinced that digitalis, strychnin and several other drugs raised blood-pressure as part of their ordinary action. This is now disputed and a new attitude must be taken in regard to these old-time remedies. Similarly the older view that altitude raised the blood-pressure must give way to the results of observations which show that it produces little change, but that its influence is in the direction of depression rather than of elevation of the pressure. Full references are given as a rule so that the reader can pursue further studies on any part of the subject.

The People's Guide: Points for the Patient, Notes for the Nurse, Matter for the Medical Adviser, Succor for the Suffering, Precepts for the Public. By John Grimshaw, M.D., B.S., D.P.H. Cloth. Price, $3 net. Pp. 839. New York: The Macmillan Company, 1912.

It is recognized to-day that one of the functions of the medical man is the instruction of the laity. There is no better means for carrying out this function than by the popular medical guide or by some similar work designed to give the layman advice in regard to health. Such a work becomes a household oracle, consulted in the most serious emergencies. Such books in the past have often disgraced the medical profession by their crudities and inaccuracies. This is all the more reason why the modern writer should endeavor to redeem this field from the enemy represented by the nostrum man or the faddist. We believe that Dr. Grimshaw has endeavored to do this and has succeeded. The author has certainly given good measure and the volume is filled with valuable information and seems worthy of recommendation.

Calm Yourself. By George Lincoln Walton, M.D. Cloth. Price, $0.50. Pp. 46. Boston: Houghton, Mifflin Company, 1913.

This book is a plea for equanimity and a purely practical equanimity, such as will enable a person to take a street car in the rush hours without losing his temper. Not that the author expects any one to reach such a state, but he hopes that people will cultivate poise to the extent at least of lessening fears, of taking the edge off acute resentments against persons and things, of modifying impatience and curbing worry. As a shield against every-day annoyances the author advocates the use of the phrase "never touched me," and illustrates the way such maxims should be ready for immediate use by the following story in which the joke was *on him*: While the author was walking with a friend an automobile came up behind announcing its approach by a honk which was neither groan, grunt, growl, nor scream, but a mixture of all. He said to his friend: "Don't you hate these freak horns?" "I used to," said the friend, "but since reading your book I say to myself, '*never touched me*.'"

A Laboratory Guide to the Study of Parasitology. By W. B. Herms. Cloth. Price, $0.80 net. Pp. 72. New York: The Macmillan Company, 1913.

With the rapid growth of parasitology, especially in its relation to preventive medicine, there has arisen a demand for thorough laboratory instruction in this important field. The study of the methods of transmission of various parasitic and infectious diseases is of such vital importance to the country at large that every student, practitioner and, especially, every health officer should have at least a general knowledge of the characteristics and habits of the more common parasites and parasite-carriers. This guide comprises a series of practical laboratory exercises on the more common parasites. The exercises are admirably planned and should prove valuable in direct and differential diagnostic work.

Die Störungen des Verdauungsapparates als Ursache und Folge anderer Erkrankungen. Von Dr. Hans Herz. Second Edition. Part Two: Die akuten Infektionskrankheiten in ihren Beziehungen zum Verdauungsapparat. Paper. Price, 8 marks. Pp. 449. Berlin: S. Karger, 1913.

This is the second part of a monograph already described in The Journal. It will be as useful as the first portion. It embraces what is known of disturbances of digestion as causes or foci of entrance of causes of infections, and the disturbances of the digestive organs due to infectious diseases. The book will be found valuable by those especially interested in these subjects.

Hygiene and Sanitation. A Text-Book for Nurses. By George M. Price, M.D., Director of Investigation, New York State Factory Commission. Cloth. Price, $1.50 net. Pp. 236. Philadelphia: Lea & Febiger, 1913.

This book is designed to give the nurse a knowledge of the elements of hygiene in its various branches. Under "Hygiene of Habitations" there is perhaps a little more practical plumbing than the average nurse is likely to require in her daily work, unless, indeed, she is a member of the Visiting Nurses' Association, or in the employ of a city department of health. Taken all in all, however, the book is practical and should be of great value to all nurses, especially those engaged in work of a semipublic character, such as school nurses and health department nurses.

SYSTEMATIC CASE-TAKING. A Practical Guide to the Examination and Recording of Medical Cases. By Henry Lawrence McKisack, M.D., M.R.C.P., Physician to the Royal Victoria Hospital, Belfast. Cloth. Price, $1.50 net. Pp. 166. New York: Paul B. Hoeber, 1913.

The author has amplified the ordinary syllabus of case taking into a short manual which not only indicates the steps to be taken to elicit the desired information, but which discusses briefly the diagnostic significance of the various symptoms discovered.

LIPPINCOTT'S BLOOD-PRESSURE AND CLINICAL CHARTS. Designed by Percival Nicholson, M.D. Price, $0.50 per set of fifty sheets. Philadelphia: J. B. Lippincott Company, 1913.

This is a convenient ruled chart, designed to facilitate the plotting of curves of systolic and diastolic blood-pressure and temperature in Fahrenheit degrees. A single sheet will accommodate the records of three weeks.

Medicolegal

Lodge Physician's Contract and Right to Compensation

(Page vs. Cohen (N. Y.), 140 N. Y. Supp. 935)

[illegible] final [illegible]upreme Court of New York, Appellate Term, Second [illegible]ent, holds, in this action against the treasurer of C[illegible] by w[illegible] Island, No. 34, Foresters of America, that, the pla[illegible] been duly elected at the election of March 27, 190[illegible] [illegible]sician for a period of one year, this election con[illegible] [illegible]nployment, which being duly recorded by the [illegible] lodge proceedings, such record took the case out [illegible]ute of frauds requiring certain contracts to be in [illegible]e plaintiff protested over and over again that he [illegible]'s contract, which entitled him to 25 cents per me[illegible]e defendant lodge for the last quarter of the ye[illegible]iod in suit. Whether treated as an action for w[illegible]r breach of contract, the plaintiff on the case made was entitled to recover. There was no necessity for demanding that he elect on which ground he expected to recover. The period of his service having passed, and his compensation having been fixed by special contract, nothing remained to be ascertained except the number of members, on which his compensation was based, and his readiness and willingness to perform, his evidence of which was erroneously excluded.

When Silence Not Consent to Physical Examination

(State vs. Horton (Mo.), 153 S. W. R. 1051)

The Supreme Court of Missouri, Division No. 2, says that the defendant, who was convicted of rape, insisted that the physicians who examined him while he was in custody should not have been allowed to testify to the fact that he was suffering from a venereal disease. To meet this insistence, the state contended that the examination complained of was made with the defendant's consent. The court having read the record carefully, finds that the "consent" consisted of the failure of the defendant to object to the physical examination. When a man is under arrest, without counsel, and, speaking metaphorically, is standing in the shadow of a policeman's club, it requires something much more substantial than silence to justify an invasion of his constitutional right not to be compelled to furnish evidence against himself. If the evidence of the physicians had been objected to on the ground that the physical examination which they made under the orders of a police captain amounted to compelling him to testify against himself, as prohibited by Section 23, Article 2, of the Constitution of Missouri, then the admission of their evidence would undoubtedly have constituted reversible error. Instead of objecting to this evidence on proper grounds, however, the defendant merely objected because the physical examination took place after the preliminary examination before the committing magistrate. Such an objection was wholly insufficient to call the trial court's attention to the incompetency of this evidence.

Jurisdiction and Power of State Board of Health

(Board of Health of State of Louisiana vs. Susslin (La.), 61 So. R. 661)

The Supreme Court of Louisiana holds that Act 192 of 1898, of that state, as amended, confers on the State Board of Health jurisdiction over matters of local sanitation which, in the opinion of the board, cannot be efficiently and effectually regulated by the local boards. Act 98 of 1906 confers jurisdiction on the state board over the subject-matter of the manufacture, sale and inspection of foods within the state in so far as the same may affect the public health.

Such legislation is not repugnant to the provisions of Article 319 of the Constitution of 1898, guaranteeing to the electors of the city of New Orleans the right to elect their public officers charged with the exercise of the police powers and administration of the affairs of the city. Article 296 of the Constitution of 1898 vests in the general assembly the power to create state and local boards of health, and to define the duties and prescribe the powers thereof. This grant necessarily includes the power to determine the mode of the selection of members of boards of health, state and local, and withdraws the subject-matter from the purview of Article 319 of the same Constitution.

The preservation of the public health is a matter which concerns the state at large, and has been properly left to the State Board of Health, with jurisdiction to adopt a sanitary code of rules and regulations having the force of laws throughout the commonwealth.

The State Board of Health may enjoin the manufacture of food under such conditions as to render its use dangerous to the public health.

The court says that the point that the Board of Health, though armed with criminal remedies, may, in a proper case, have recourse to a civil proceeding or injunction for suppressing a public nuisance was definitely settled by this court in *Board vs. Maginnis Cotton Mills*, 46 La. Ann. 806, and, if one-half of what was alleged in the petition in this case as to the defendant's bakery being conducted in so insanitary a manner as to constitute a public nuisance was true, the case was a very highly proper one for such an injunction.

Constitutionality of State Pure Food Act Prohibiting Use of Boric Acid in Preservatives

(People vs. Price (Ill.), 101 N. E. R. 196)

The Supreme Court of Illinois holds constitutional the Illinois pure food statute enacted in 1907, and affirms a conviction of the defendant of violating it, he having been charged with having unlawfully manufactured for sale and sold a preservative compound known as Mrs. Price's Canning Compound, intended as a preservative of food, which was unwholesome and injurious in that it contained boric acid. The court says that the main purpose of the act is to protect health by preventing adulteration of food by any unwholesome and injurious ingredient. Boric acid is declared to be unwholesome and injurious, and the sale of any food to which it is an added ingredient is prohibited. It is just as important to prohibit the sale to the housewife of a compound containing boric acid, to be used by her to preserve fruits and vegetables put up by her for family use, as it is to prohibit the sale of fruits and vegetables after such an ingredient has been added. The reasonable construction of the act is that the prohibition against boric acid is not limited to foods to which it is an added ingredient, but extends to compounds, sold as a food preservative, which contain boric acid. The danger to health is as great from one as the other, and the prohibition of both was necessary to effect the evident purpose of the legislature. It may be conceded that the legislature has no authority to forbid the sale of a known wholesome article of food; but it is certain boric acid is not so universally conceded or known to be wholesome that judicial notice will be taken of it. Whether it is or not is a matter of dispute. In such cases, in enacting legislation in the exercise of the police power of the state, the legislative declaration that it is unwholesome must be accepted by the courts, and they will not investigate the facts for the purpose of determining whether or not the declaration of the legislature was warranted by the facts. Nor was the defendant protected, in the sale of the preservative, under the doctrine of the original package decisions of the Supreme Court of the United States, although the preservative in question was manufactured in another state and sold in Illinois in the original package.

Plaintiff Declared Barren, Afterward Giving Birth to Child

(Anshutz vs. Louisville Railway Co. (Ky.), 154 S. W. R. 13)

The Court of Appeals of Kentucky says that, in April, 1910, the plaintiff, a young married woman, aged 23, was injured while a passenger on one of the defendant's cars. At the time she was enceinte, and, September 6, there was born to her a boy baby. In April, 1911, she was taken to a hospital in Louisville, and, after having been there a few days, a serious operation was performed on her, at which time it was shown by the several physicians and surgeons who were present that there were removed from her body both fallopian tubes, the whole of the left ovary, and part of the right ovary. Her suit against the railway company for damages came on for trial on Dec. 21, 1911. Previous to the trial, however, the court, on motion of the railway company, appointed a surgeon to examine the plaintiff as to the nature and extent of her injuries, and her physical condition at that time. On the trial all the physicians and surgeons who were present at the operation in April, 1911, testified, as above indicated, with reference to the nature of the operation, and in addition that by reason thereof the plaintiff was made barren and could never have another child. They further stated that, at the time of the trial, a tumor had developed in her abdomen, which would sooner or later necessitate still another, and possibly more serious, operation, which would probably endanger her life. The surgeon appointed by the court, basing his testimony on the history of the case as given to him by the other physicians and surgeons, testified in substance to the same thing. The jury rendered a verdict for $7,000 for the plaintiff. On June 3, 1912, the plaintiff gave birth to another boy baby, and twenty-five days thereafter the railway company filed its action setting up this fact, and asked for a new trial of the former case, which was properly granted. There is nothing stronger in nature than the inherent desire to propagate one's species, and the fact that one has been wrongfully deprived of the procreative power would certainly, and must properly, appeal not only to the sympathy, but to the judgment of a jury, and incline them to be liberal in the assessment of damages. No reflection is intended on the physicians and surgeons who testified. Either there was some strange and unaccountable mistake, or one of those freakish things in nature happened which are so rare that they are said by scientific people to be impossible.

Climatic Observations at Davos.—Dorno has recently published the results of his observations at Davos, in which special attention was paid to the measurement of radiation, including separate records of the thermal, luminous, photographic and photo-electric intensity of direct radiation from the sun, and also the combined radiation from sun and sky, with and without clouds, etc. Discoveries have apparently been made which may have therapeutic applications. The most intense ultraviolet radiation occurs in summer, which probably explains the "glacier-burn" which occurs among patients in summer. A single summer day may give as much ultraviolet radiation as a whole month in winter. Thermal radiation, however, is most intense in the spring.—*Scientific American.*

Society Proceedings

COMING MEETINGS

Am. Academy of Ophthal. and Oto-Laryn., Chattanooga, Oct. 27-29.
A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Third Annual Session, Sept. 22-26, 1913

(Continued from page 1483)

Present Conception of Arthritis Deformans

Dr. David Silver, Pittsburgh: Infection is the usual exciting cause of joint diseases in general, although trauma may act as an exciting cause in individual joints. No form of arthritis is known to be due to metabolic disturbance, unless it be gout. In the more gradual types of onset, the resistance of the patient is not so good as in the acute form. Although infection is usually due to some definite local sepsis, recovery does not follow the removal of the probable source of infection. When the disease is once established, other causes become active in perpetuating it. Treatment, to be effective, must include not only the joint lesion, but also all the elements of the case: the removal of the infective focus, when found; the use of measures to bring about function as near to the normal as possible, and the local care of the joint. The problem frequently becomes one mainly of increasing the lowered physical resistance.

DISCUSSION

Dr. Gwilym G. Davis, Philadelphia: The infection in these cases may carry over a very long period of time, and may persist for years after the original focus has apparently been cured. In the early stages, the treatment should be directed against the infection, and in the later stages it should be a nursing treatment. Attention to the gastro-intestinal tract has certainly improved many cases.

Dr. George E. Pfahler, Philadelphia: One source of infection overlooked in such cases is the teeth. Even though one sees nothing locally, if the patient has had many fillings in the mouth or much dental work done I should advise that the teeth be thoroughly studied roentgenographically in the hope of finding the source of infection in obscure cases.

Dr. David Silver, Pittsburgh: We must not forget that pyorrhea and other common sources of infection may be secondary, and may be due to the debilitated condition of the patient.

Operative Treatment of Hernia

Dr. J. B. Carnett, Philadelphia: Practically all hernias of young children belong to the congenital inguinal or the infantile umbilical type. The great majority of these can be cured by nonoperative treatment. After one year of age this treatment becomes less certain and after five years cure seldom occurs. Femoral hernia is rare in children and is never cured by a truss. If truss treatment cannot be applied thoroughly, operation should be done. It is very exceptional for truss treatment to prove curative in the adult, and it should be used only in those who refuse operation or where it is contra-indicated. Incarceration and strangulation are frequent in truss wearers. Most trusses are of poor construction and ineffective. The only contra-indications to operation in adults are extreme old age, grave organic disease and very large, irreducible hernias. In strangulation taxis should be done only during the first four hours and must then be gentle. As a rule, it should not be done at all, but resort be had at once to operation, the earlier the better the results. As a rule Bassini's method of operation is the best, though it may be modified to meet special indications.

The Dental Aspect of Oral Sepsis

Dr. Randle C. Rosenberger, Philadelphia: The bacterial flora of an unclean mouth is very complex. Most of the organisms are nonpathogenic, but, when the enamel is injured, they produce erosion of the dentine and destruction of the teeth. The bacteria can be greatly reduced by proper attention to cleanliness. Decayed teeth and stumps swarm with bacteria which find their way through the dental canals and the dentine and produce diseases of the gums and the alveoli. Improperly capped teeth are a menace on account of the bacteria they barbor. One of the worst conditions of the mouth with which we have to deal is pyorrhea alveolaris, which is due to pus-producing organisms.

DISCUSSION

Dr. J. Harold Austin, Philadelphia: Certain obscure toxic conditions are undoubtedly due to oral sepsis. A difficulty is that of detecting these *foci* under certain circumstances. A patient with a streptococcic septicemia eventually developed an endocarditis with a fatal termination. The original focus of infection in that case remained quite obscure until shortly before death a superficial abscess in the lymph-nodes behind the angle of the jaw on the right side developed and at necropsy beneath the second lower molar was found a small abscess from which streptococci were isolated.

Dr. Joseph Head, Philadelphia: I have been treating pyorrhea alveolaris for ten years with moderately good results, but since using the autogenous vaccine and isolating every form of bacteria, we have better results and far more permanent. Also when the mouth cleared up the patients spoke of the great improvement they felt in the systemic condition, showing that there must have been a stopping of toxic material entering the blood which had reduced their vital forces. In the same way no one can hope to cure pyorrhea alveolaris when using vaccine without removing the source of infection.

Dr. I. Norman Broomell, Philadelphia: Oral sepsis is a potent factor favoring systemic disease. Such lesions are usually either directly or indirectly due to caries and this in turn is due to lack of oral hygiene. Prophylactic measures should begin early and extend to old age.

End-Results of Bone Tuberculosis

Drs. De Forest P. Willard and Frank D. Dickson, Philadelphia: Our observations are based on 200 cases very carefully selected in which the diagnosis was assured, the treatment thorough and the cases under observation at least five years. In 142 cases the disease is quiescent, forty-five are still under treatment and there have been thirteen deaths. Of the quiescent cases eighty have normal joint function and in sixty-two there is material impairment. Results have been much better when the treatment has been instituted early. The greatest benefit has been obtained by bed treatment as opposed to casts and braces. Strict enforcement of hygiene and supervision after leaving the hospital are essential.

DISCUSSION

Dr. W. J. Merrill, Philadelphia: I wish to emphasize two points: First, the absolute fixation of the diseased part until the disease is arrested and, second, the rest of the patient in bed during the acute stage of the tuberculous joint disease. Erroneous conclusions are often drawn from treatment of joint affections which resemble tuberculosis but are not tuberculous. Also, from the application and the faulty maintenance of bed and cast treatment. One fact is very evident, that the increase of good results is enormously enlarged by the introduction of early treatment.

Dr. G. G. Davis, Philadelphia: We must devote more attention to heliotherapy. That is, first, open-air treatment of tuberculous joints in the same way that you treat tuberculous disease of the lungs and, second, to expose locally the wounds directly to the sunlight. It is amazing to see in Switzerland children playing in the snow with nothing but a hat, a pair of slippers and apparently a breech belt.

Operative Treatment of Fractures

Dr. Edward Martin, Philadelphia: A further experience with the open treatment of fractures has brought conviction on certain points: To the effect that the fractures of children very rarely require outward intervention. In them reduction is usually easy and retention efficient. Moreover, even though reduction be imperfect, the tendency during growth is toward the correction of the deformity rather than toward an exclusion. This often is in marked contrast to the fractures of the adult, particularly to those at or past middle age. The bones during their growing period are more avid of nutriment than any other tissues of the body. It seems quite definitely shown that even with the most perfect apposition and retention by buried plates, supplemented by splinting, the healing of the fracture is slower than it is after satisfactory, though less perfect, apposition, without operative intervention. It seems clear that even with the most perfect technic and with primary healing, plates and screws at times become a source of irritation and must be removed. Time, skill and attention are devoted to reduction and retention and yet movement and massage, so important for restoration are too often postponed or omitted altogether. It is also clear that in fractures united with slight deformity this deformity in the case of the adult is often enormously increased by too early a use of the part. This is notably true in regard to fractures of the femur. By the Whitman reduction method and by the Phillip-Maxwell-Ruth double traction method it has been shown that fractures of the neck either subcapital or subtrochanteric, can, as a rule, be united and that good function will result. It is undoubtedly true that certain fractures of the femur cannot be reduced and cannot be retained. Such fractures undoubtedly should be subject to open operation. The best mechanical device for fixation after internal splinting, so far the best that none other can be mentioned beside it, is the vanadium steel plate of Sherman. This, with the screws and screw-driver supplemented by the use of the Lowman clamp and by an efficient drill, makes the operation of plating an easy one. The general principles where an open operation is needful for reduction, retention should be secured by the least possible amount of buried foreign material. Hence a strip of fascia and chromic catgut, strings, nails, screws, fine silk or wire are preferable to plates when they serve the purpose. Often they will not. There are some fractures, notably those of the tibia, in which union fails, though apposition is practically perfect, nor does metal plating help matters. Such fractures should be treated by either plating or pegging or otherwise bracing together with bone flaps taken from the patient at the time of operation.

DISCUSSION

Dr. William S. O. Sherman, Pittsburgh: The success in the operative treatment of fractures where plates and screws are used is dependent on three factors: First, an aseptic wound; second, screws which will not pull out, and third, a plate which will not break. Ninety-eight per cent. of the failures in this class of work have been due to infections, the pulling out of screws and the breaking of plates. The infections would be greatly minimized if the teaching and technic of Mr. Lane were carefully carried out. There is no occasion for the screws pulling out and plates breaking if the proper screws and plates are used. Why use three times as large if one-third will answer the purpose? Why use ten wood screws in a bone if two or four machine-made screws will have a greater holding power? Every mechanic knows that a wood screw should not be inserted in hard, compact bone. A mechanic would not put a screw in marble or ivory directly, he first drills the hole and then puts in his screw. In the last four years I have operated 150 times in a series of over 2,000 fractures. These cases were due to severe traumatism in the mills and mines in the western part of Pennsylvania. The end-results in these cases were very satisfactory; certainly the disability was greatly minimized. In the first series with Lane screws we found it necessary to remove 30 per cent. of the plates. Since using vanadium steel and tap screws only 2 per cent. of the plates have been removed.

Carcinoma of the Breast

Dr. John B Deaver, Philadelphia: Cancer of the breast is the type of malignant tumor analogous in its tendencies to internal cancer. The reason for this is that the patient is sent too late to the surgeon. The chief hope for reducing the mortality from cancer is to teach patients to avoid all sources of irritation, now regarded as causative of cancer, and to watch for early signs of malignant change. In our last 200 cases of cancer of the breast considered operable, an average of three years had elapsed between discovery of the lump and operation. Death occurred in more than 75 per cent. of the cases.

DISCUSSION

Dr. William L. Rodman, Philadelphia: The principal thought to be gathered from Dr. Deaver is that since we cannot certainly diagnose cancer in its early stages then the best thing to do is to operate in the precancerous conditions. I fully agree with him that perhaps every case of cancer of the breast is preceded by a chronic cystic mastitis. Statistics show that a percentage varying from 10 to 50 results in cancer. Therefore, the lesson to be drawn is not to wait for inoperable cancer. Until we have done that we will not achieve the good results in cancer of the breast we should.

The Transmutation of Tumors

Dr. William L. Estes, South Bethlehem: A number of surgeons have reported cases of tumors which have both epithelial and connective tissue malignancy. There are on record cases in which patients who have had cancer have developed sarcoma *in situ* or metastatically. I have seen several instances of this sort.

DISCUSSION

Dr. John Speese, Philadelphia: It is rather difficult to believe that in tumors, sarcomas or carcinomas, a transmutation can occur. It seems more rational to believe that these tumors are both independent, although we must admit with special pathology that long irritation by sarcoma may so stimulate the overlying epithelium that cancer may develop. Or, on the other hand, that as squamous carcinoma pushes down on the tissues the equilibrium may be so upset that sarcoma develops. They may occur side by side.

Inflammation of the Female Pelvis with Reference to Smears Made at Time of Operation to Determine the Necessity of Drainage

Dr. William H. Howell, Altoona: Ninety per cent. of diseases of the female pelvis are due to neisserian infection or to abortion. Gonorrhea is a mucous membrane disease and travels over the mucosa through the uterus to the tubes. Infections of the broad ligaments and Douglas' cul-de-sac are due to extension by way of the lymphatics. In such infections the treatment should be expectant until an abscess localizes the infection, when the pus should be evacuated per vaginam. In gonorrheal infection of the fallopian tubes the time favorable for operation should be awaited, when salpingectomy should be done. No conservative operation will ever restore the function of the tube.

DISCUSSION

Dr. Brooke M. Anspach, Philadelphia: Unquestionably in pelvic surgery the best treatment is non-operative during the acute stage. That is almost invariably true in the cases of gonorrheal pelvic infection, and the surgeon does well who leaves these cases alone until the conflagration has subsided and until the results of the destructive lesion are apparent and the virulence of the infection has passed, and when he will need to do less radical surgery than during the acute stage. The same conservative plan is advisable in puerperal infection, which is usually of a much more serious type. Under these circumstances if the infection can be reached by a vaginal or an extraperitoneal incision, that of course is the procedure of choice and in the great number of cases proves a life-saving measure. If it cannot be reached by this means and we are obliged to do an abdominal operation, then, I think, drainage must be a part of the technic.

Dr. George M. Boyd, Philadelphia: We are getting away from the early surgery of obstetric infections. We must look on the early puerperal infection as a general infection and not a local infection. The question also arises whether the patient has developed on top of her puerperal infection a gonococcus infection. I invariably say that if it is a simple puerperal infection in all probability the trouble would have disappeared within two or three months, but in gonococcus infection a mass can be felt months after the delivery.

Dr. G. E. Shoemaker, Philadelphia: I want to endorse what Dr. Howell said about the effectiveness of the waiting method in the handling of the puerperal infections and the danger of operating in all these cases through the abdomen in the active stage. The particular point he raised as to the method of getting help from microscopic examination is limited to a very few cases.

Some Diagnostic Errors in Differentiating Lesions of the Cervix

Dr. Edward Weiss, Pittsburgh: In case of lesion of the cervix uteri one should always think of cancer. The early symptoms of cancer of the cervix are not characteristic. If examination is refused by the patient, no treatment should be given, but the dangers of indiscriminate drugging and douching explained to the patient. Too often the mistake is made of waiting for positive signs. Any ulcer-like lesion of the cervix should be referred to an expert for diagnosis if it does not respond quickly to local treatment. It is very difficult to make a diagnosis from sections. I have recently encountered five errors made in this way. One of the most confusing conditions is cystic degeneration of the nabothian follicles. Ulceration from procidentia or chancroids is sometimes mistaken for cancer. Every married woman above forty years of age should be urged to submit to examination once or twice a year.

DISCUSSION

Dr. G. E. Shoemaker, Philadelphia: One of the sources of error and subsequent sorrow is the dependence on symptoms both on the part of the patient and on the part of the physician. We cannot wait for the development of pain or odor, or emaciation. We frequently see the stout, healthy-looking woman with advanced carcinoma.

Dr. John A. McGlinn, Philadelphia: Many women have symptoms which undoubtedly point to cancer of the cervix and never consult the family physician until it is too late to do anything for them. So that, while I believe it is of great benefit to teach the general practitioner the necessity of early diagnosis, we should teach the women to have frequent examinations when they have any symptoms referable to the genital tract. I believe the early diagnosis of cancer is practically valueless unless this diagnosis be made by microscopic examination of the tissue. I believe we are wasting time in teaching the value of early diagnosis and not teaching that the time to operate on cancer of the cervix is before the patient has cancer of the cervix.

The Roentgenogram in the Diagnosis of Gastroenteroptosis

Dr. Henry K. Pancoast, Philadelphia: The diagnosis of gastroptosis can usually readily be made clinically. The real value of the roentgenologist is to be found in the deduction of a comprehensive knowledge of the condition and all the factors concerned, some of which can be obtained in no other way. There are, however, many chances of error. According to our present knowledge the greater curvature of the stomach may extend to or even two- or three inches below the navel without impairment of its function. Gastroptosis is now known to be much less frequent than formerly supposed. The mistake is often made of ascribing digestive and neurasthenic symptoms to gastroptosis when these symptoms are due to other causes. In the Roentgen rays we have the best method of determining gastric motility and atony. Severity of symptoms and failure to relieve them by other means, rather than the roentgenographic finding alone, furnish the indication for operation, though the Roentgen rays enable the surgeon to decide on the type of operation and whether it is likely to give relief or not; also to learn the anatomic results of operation.

DISCUSSION

Dr. David Silver, Pittsburgh: I would like to emphasize one point in treatment, the importance of teaching the patient the importance of voluntary abdominal control. We can give them corsets and exercises to increase the strength of the muscular wall, but, if we do not teach them control, we will fail of our object. Unless we change the posture and restore the normal contour, how can we expect a simple fibrous band to hold up an organ after the ordinary pursuits of life have begun again?

Dr. **Joseph Sailer**, Philadelphia: I think that the reason for the divergent views held by physicians and surgeons in reference to splanchnoptosis is that it is neither a medical nor a surgical subject in itself. It belongs to both departments. The services of a physician in the diagnosis are perhaps equally as important as the services of a surgeon for cure. Whether the surgeon or physician supervise the treatment our methods of cure are what we commonly call external therapeutics. They consist of exercise, support and posture and to a very slight degree the application of drugs. It makes very little difference to the patient, and it ought to make very little difference to the physician, what position the colon assumes in the abdomen, providing its function is performed. It makes very little difference what is the position of the greater curvature and pylorus if it furnishes secretion and provides nutrition for the body and gives no definite symptoms. I believe that in the treatment of these cases a great deal is accomplished by means of breathing exercises and abdominal support.

(To be continued)

MEDICAL ASSOCIATION OF THE SOUTHWEST

Eighth Annual Meeting, held at Kansas City, Mo., Oct. 7-8, 1913

The President, Dr. **W. T. Wooton**, Hot Springs, Ark., in the Chair

Prophylaxis of Syphilis and Professional Ethics

Dr. **Alfred Schalek**, Omaha: Syphilis must be attacked in two directions: in its relation to society and to the individual. Prostitution contributes the greatest factor in spreading infection. It is only a question of time before every prostitute becomes diseased. Official regulation has proven a failure wherever attempted. Absolute suppression is the only relief. While seemingly an utopian dream, it is feasible with the honest cooperation of everybody concerned. It necessitates measures to stop all sources leading to prostitution. When the time comes that syphilis is looked on only as a pathologic condition, in no way different from others, when its stigma of disrepute has been removed, when our therapy will destroy the micro-organisms and eliminate the toxins, and not only secure a symptomatic but real cure, our ambition to make syphilis a disease of the past will begin to be realized.

DISCUSSION

Dr. **William Frick**, Kansas City, Mo.: I wish to emphasize the fact that a great many cases of syphilis are innocently contracted. I recall the case of a young woman who developed a chancre of the upper lip. She was having her teeth repaired and injury was done to the upper lip. In about the proper length of time a chancre developed. She had a secondary eruption.

Dr. **J. D. Kernodle**, Boyle, Okla.: I believe ignorance is at the bottom of the trouble. There is not a boy or girl who does not know right from wrong, but they do not know the tremendous consequences following a wrong. They need education along these lines.

Dr. **E. H. Martin**, Hot Springs, Ark: If you admit you can cure syphilis, you will admit that the best method is prophylaxis.

Dr. **R. H. T. Mann**, Texarkana: Is it possible to eradicate syphilis from America? It is, but it can be done only when the medical profession awakens to its full responsibility and gets the assistance of the various communities and state governments. Whether this task can be performed in this generation, or whether it will fall on future generations to drive syphilis out of America, depends wholly on the activities of the physicians now living, but it is a task that can be accomplished. The medical profession owes it to humanity to eradicate syphilis from this country.

Dr. **E. G. Mark**, Kansas City, Mo.: With regard to the prevention of venereal disease, we must take the stand as physicians that prostitution cannot be eradicated, but you can segregate and control it. With proper segregation, proper inspection, venereal diseases can almost be eradicated, but prostitution can never be suppressed.

Dr. **Ross Grossheart**, Tulsa, Okla.: Venereal diseases and their dangers should be taught to the pupils of high schools, and when this is done sexual evils will be lessened and much done toward the wiping out of syphilis.

Surgical Constipation

Dr. **A. L. Blesh**, Oklahoma City: Aside from various stenoses, congenital or acquired, constipation has principally to do with the colon, or to better express my meaning, the colon has most to do with constipation. Coprostasis is the *fons et origo* of a train of pathologic sequences ranging from the misnamed "biliousness" to true organic nephritis and other organic degenerations which have long been treated as entities. The field of so-called idiopathic or purely functional constipation is becoming more and more circumscribed, and more and more we are coming to realize that mechanical interference is at the bottom of the condition. These mechanical causative factors frequently consist in embryologic deviations having their origin in evolutionary processes, that is, reversions to some remote ancestral type. Many of these deviations exist without symptoms being fully compensated in one or more of several ways. They may exist symptomless for a time and then be brought to the surface by some grave physical crisis, such as reducing illness, and especially so by labor in which hitherto compensating elasticity of a tense abdominal wall is lost by overstretching. That compensation, when it consists in muscular overdevelopment of the colon itself, may be lost, as is the case with any other overmuscularization of a hollow viscus. I have anchored the colon in eight cases, with complete relief of constipation and sequences in four; partially relieved, two; unimproved, two; ileosigmoidoscopy with separation of ileum, five; completely relieved, three; improved, two; cecosigmoidoscopy, two; completely relieved, two; Lane short-circuiting, severing of the ileum with implantation low in the sigmoid, in three; all are much improved, but all have had attacks due to regurgitation mentioned above.

Operative Treatment of Constipation

Dr. **W. J. Frick**, Kansas City, Mo.: Operative treatment of constipation is indicated when some degree of organic obstruction of the intestine exists. I am not an advocate of surgical interference in this condition, except after all intelligent efforts at a medical cure have failed and the patient is threatened with a permanent invalidism. Concerning the bands, membranes, adhesions and kinks, we cannot yet be certain whether they are the cause or the result of constipation. According to the available evidence, it would seem that they were the cause rather than the result, since the most recent researches appear to support the theory that they are developmental in origin rather than the result of inflammatory processes. But that they may bear neither causal nor resultant relationship to constipation is shown by the clinical experience of competent observers. Certainly much improvement follows the division of these structures in some cases; just as certainly this treatment has given not the slightest benefit in other cases. Another of the causes of constipation is the result of chronic pelvic peritonitis. I have in mind the fixation of the pelvic colon to the pelvic floor or to the rectum.

Some fibroids of the uterus, retrodisplacements of uterus and tense cysts are capable of exerting such pressure on the pelvic colon as to cause difficult, painful and inefficient defecation. After removal of the tumor or correction of the displacement, these patients recover from their constipation. Among other short-circuiting operations is one done for exclusion of the splenic flexure, that is, anastomosis between the ascending limb of the transverse colon and the decending colon. Colectomy relieves all the trouble that may have existed in the colon; however, the removal of the colon is a formidable operation and is not without danger. It is not an operation for one who has not had a large experience in abdominal surgery. All short-circuiting operations of whatever type are contra-indicated in cases in which the cause of the trouble lies distal to the lower portion of the pelvic colon. In such cases ileosigmoidostomy cannot relieve, but, on the contrary, may even aggravate the trouble.

Uncinariasis in the Middle States

DR. ESTILL D. HOLLAND, Hot Springs, Ark.: The treatment of hookworm is not as simple, safe or satisfactory as you may have been led to believe, but if you can start treating a patient who has two hundred hookworms and even get half of them with each course of thymol, it will not be long before he will either be cured or else have so few remaining that they will not cause him any inconvenience—provided he does not get a reinfection. The examination of the stool of patients will explain a great many chronic cases. There is no way to diagnose a moderately severe case of hookworm except by examining the stool, and if a patient has the disease it will practically always show on such an examination.

The High Short Incision for Cesarean Section

DR. H. S. CROSSEN, St. Louis, Mo.: The high incision in suitable cases has two distinct advantages. First, there is less extensive handling of the peritoneal surfaces—hence less peritoneal shock and less danger of infection from handling. Second, the incised uterus drops away from the abdominal incision, thus preventing adhesion and firm fixation of the incised uterus to the abdominal wall, which has proved a serious matter in some cases operated on by the usual incision. Of course, the high incision is suitable only for clean cases, where it is permissible to open the uterus within the peritoneal cavity. When the uterus is infected, the long incision should be used so that the uterus may be turned out before being opened. Again, when there is a probability that the uterus will have to be removed, on account of a tumor or other complication, the low incision should be employed. In the majority of clean cases requiring the cesarean section, the high incision will be found decidedly advantageous.

A Study of Epilepsy Based on One Thousand Admissions to the Kansas State Hospital for Epileptics

DR. M. L. PERRY, Parsons, Kan.: To be effective, systematic treatment should be begun early in the course of the disease and must be long continued. There are few diseases in which individual treatment is so important. Every case of epilepsy presents distinctive features which have a bearing on its proper and scientific handling. A very large number of patients will show temporary improvement under a change of treatment. In all head injuries a careful examination should be made for fractures of the skull and for evidence of depressed bone or meningeal hemorrhage. Any of these conditions call for immediate operation as a prophylactic measure. In all cases jacksonian epilepsy should be operated on if seen early. In long-standing cases due to cortical irritation and in chronic epilepsy from other causes little may be expected from intracranial surgery. As a routine measure, a search should be made for peripheral irritations to the nervous system and if any are found appropriate remedies, either surgical or medical, should be instituted for their relief. The attention should not be too strongly concentrated on merely checking the convulsive attacks, but it should be borne in mind that they are only symptoms of a general nervous disease. There is no drug which of itself will effect a cure. Of all the drugs used in the treatment of epilepsy the bromin preparations are the most effective. The bromid of sodium is the most satisfactory, as a rule. There is no advantage to be gained by combining a number of the bromids. Comparatively small doses of bromids usually yield better results than do large ones. Bromids should never be given, except in proper doses determined for the individual case and when the patient is under the frequent observation of a physician. I am convinced that most of the disrepute into which the bromids have fallen in recent years is directly due to their indiscriminate and unscientific administration. Any form of medical treatment will be limited in its effectiveness unless reinforced by hygienic and dietetic regulations.

(To be continued)

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 2-3, 1913

The President, DR. R. J. HILL, Minneapolis, in the Chair

Common Infections That Are Often Erroneously Diagnosed as Grip

DR. C. L. SHERMAN, Luverne: During the first four months of this year a number of cases of influenza developed in Luverne and vicinity. I attempted to study fourteen cases. Smears from the throat, sputum and secondary lesions were examined and cultures made. The influenza bacillus was found in only two. Streptococci were present in all cases, often in pure culture. In many respects they resembled the organism described by Davis and Rosenow. The pneumococci were present in four cases, and, in one instance, though not suspected previous to the examination, the tubercle bacillus was found. The onset was invariably abrupt. Fever was present in all cases, ranging from 101 to 104 F. Well-marked symptoms of infection of the upper passages were constant. All the patients complained more or less of sore throat. Cough, present at the time of the attack or developing within forty-eight hours with more or less expectoration, prevailed in all cases. Twelve had headache. Thirteen complained of pain in the back and limbs. Nervous symptoms were marked in six. Prostration and a feeling of disagreeableness out of proportion to the other symptoms usually prevailed. In one case in which the influenza bacillus was found there was no complaint of headache or pain. In the two cases in which the influenza bacillus was present the organism was found in smears from sputum and throat as well as in culture. Two had acute suppuration of the middle ear following the acute attack. Pure cultures of streptococci from the pus were obtained in both cases. One patient developed empyema. Pure cultures of streptococci were obtained from the exudate. One developed acute arthritis of both ankles. I feel justified in venturing the assertion that the majority of localized outbreaks considered by physicians as influenza are not caused by the influenza bacillus and should therefore not be designated as influenza.

DISCUSSION

DR. C. C. PRATT, Mankato: I would like to ask Dr. Sherman if in these cases in which he demonstrated a pure culture of the streptococcus, whether the streptococci appeared in chains when he made merely smears as well as the cultures? I find oftentimes that I get a diplococcus that appears to be a pneumococcus on smearing, but in culture it runs out in chains.

DR. C. L. SHERMAN: In answer to Dr. Pratt's question, I will say these streptococci did not occur in chains invariably, but the chains were shorter than the chains usually found in suppurative inflammations.

Preparatory and Postoperative Treatment

DR. FREDERIC J. PLONDKE, St. Paul: When circumstances permit the patient should be placed on a restricted diet for two or three days before operation. This should consist of well-cooked, easily digested food, low in proteins and devoid of raw fruit and vegetables, with a large quantity of water. From thirty-six to twenty-four hours before the operation she should receive a nonirritating cathartic, preferably castor oil, one or two ounces, and two or three hours before soapsuds or a simple enema.

In emergencies, where time does not permit a movement from a cathartic at least six hours before the time for operation, one had better rely on the enema alone, as a churned-up condition of the small intestine at the time of operation is not conducive to a comfortable postoperative convalescence. Every effort should be made to allay the fears of the patient, no matter how grave the prognosis.

When a patient's preoperation record and her general condition at the time for operation are such as would indicate a possibility of shock developing, we give a hypodermoclysis of normal salt solution as soon as she is partially anesthetized and before the operation is begun, allowing the solution to enter slowly during the time the operation is in progress, giving about three pints in all. If, in the course of an apparently simple operation, it is found that for any reason it might be unduly prolonged, the hypodermoclysis is begun at once. Under no circumstances do we wait until the pulse indicates impending shock. The salt solution is given during the operation in all septic cases, not for the stimulating effect alone, but also for the purpose of diluting the toxins. When the operation is sufficiently advanced that a distended colon does not interfere, she is given one quart of salt solution per rectum. This is done while she is sound asleep, otherwise it might be expelled. In the septic cases, and where the operation has been prolonged, proctoclysis by the drop method is begun one and a half hour after leaving the table. For this purpose one-half strength salt solution or tap water is employed. These preventive measures have been used by us for the last two years with the result that in over one thousand operations during that time there has not been a single case of severe shock.

In acute dilatation of the stomach following an operation gastric lavage usually gives prompt relief. Postoperative pneumonia is usually the result of preexisting bronchitis, careless exposure or inhalation of foreign particles, while the patient is unconscious. The treatment is largely preventive. With the use of salt solution during and after operation, thirst has lost most of its terror. Where formerly fluids were withheld entirely or allowed only in sips, there is now no hesitancy in giving them in liberal amounts.

DISCUSSION

Dr. J. W. Little, Minneapolis: In our practice, if a patient comes into the hospital on the day of operation we make no preparation aside from giving an enema a few hours before operation, but if the operation is done very soon no enema is given. Nothing is given until the patient is brought into the operating-room, and the skin has been cleansed with iodin, half strength. We dilute the iodin with alcohol. Benzoin is applied to remove any oil on the skin before that. In old people we give very little cathartics—in fact, not any at all the evening before, otherwise we usually give an ounce of castor oil, followed in the morning by an enema.

Dr. J. W. Andrews, Mankato: As to the preparation of the patient with the use of antiseptics, iodin and other agents before operation, I believe the majority of practitioners depend on iodin. There is great danger in administering morphin in cases of gas pains, for the reason that while it may relieve for an hour or two, it is all the time aggravating the condition, and I have seen a fatal issue from the use of morphin. If it had been withheld the patient might have recovered. I have seen cases of intestinal obstruction caused by morphin; the distended intestines were unable to perform their function. The hypodermic use of eserin is excellent, but in small doses only. One-thirtieth grain of physostigmin is a powerful remedy. I have seen one death from it. Death occurs on account of the arrest of respiration.

Dr. W. H. Aurand, Minneapolis: I would emphasize the importance of examining the patient's blood before operation and the condition of the kidney. Oftentimes we are too hasty in going into operations that should be postponed. We can prepare our patients for a month in advance, getting them in proper condition to stand a serious operation.

Dr. W. H. Magie, Duluth: In my experience the gastric disturbances are proportionate to the amount of ether that has been given and the traumatism and exposure of the abdominal contents. If one is sufficiently dextrous so that he can do an appendix operation in ten or fifteen minutes, gastric disturbances are not so likely to follow the operative procedure. There is very little need of morphin.

Dr. Donald Balfour, Rochester: I would like to emphasize the value of enterostomy in cases of obstruction. There is no doubt that by bringing up a loop of distended bowel in all cases of impending obstruction, or when it is evident from the patient's condition and a gradually increasing trouble that this obstruction is not going to be relieved, the performance of enterostomy will save many lives that would otherwise be lost.

Dr. J. Bacon, St. Paul: It would be folly to depend on morphin to relieve pain without trying to relieve the condition which produced it. But in the early stages after abdominal operation, pain is usually due to excessive peristaltic action. If we refrain from the use of morphin we exhaust our patients or allow them to become so. One other point: we know that the use of salines lessens the function of the kidney. For the past year I have been using plain sterile warm water in these cases. The patient retains readily far larger quantities of this liquid than of salines. The kidneys functionate early and more readily.

Dr. C. J. Holman, Mankato: With reference to acute dilatation of the stomach, if, in addition to the use of gastric lavage, you will place the patient on the abdomen to the right, you will find that the cause for obstruction at the pyloric end will be removed, and the patient will rest a great deal more comfortably and will not continue to have acute dilatation. I have been using plain water for the last six or nine months, and find my patients are more comfortable.

Dr. R. E. Farr, Minneapolis: In my experience we not infrequently have shock in some of our bad cases, and anything that can be used to prevent it is very important. The work of Crile shows that the prophylaxis with regard to shock is important, and I believe the time is coming when it will be a universal procedure to cut down the amount of anesthesia as he has done, thus reducing not only shock perceptibly, but the mortality and morbidity.

Accident Neurosis

Dr. J. M. Lewis, Minneapolis: The type of neurosis I wish to consider is the result of accident without lesion or with such structural damage that repair should follow without loss or disturbance of function of the injured part. Deformities caused by hysterical contractions closely resemble those caused by traumatism. The character of the accident, the amount of force and how applied, and the immediate effects of the injury should be considered carefully. The remote development of symptoms out of proportion to the immediate is always suspicious; that causes other than those from accidental injury are in evidence. Simulation is difficult and usually easily detected. Exaggeration is always a factor in personal injury claims. Subjective symptoms are unreliable and must not be accepted unless sustained by other evidence than the individual's statement. In these cases we have to deal with a condition. What is to be done with the victim who is really incapacitated by the conspiracy? The courts have held that liability is just as great for the accidental death or injury of a person diseased as one in health, and I believe that the lawyer and the doctor who frame up these fake injury cases should be held responsible when a claimant becomes disabled from the effects of this type of accident neurosis.

DISCUSSION

Dr. A. A. Law, Minneapolis: When we stop to consider that every man, woman and child in the community is educated by the lay press, by unscrupulous doctors, and by still more unscrupulous lawyers, that they can recover damages from corporations, is it any wonder they magnify their symptoms? Every one of us is familiar with case after case where people have symptoms out of all proportion to the injury, symptoms which are subjective, pure and simple, and the very minute they get a verdict or have a settlement made they throw away their crutches. Therefore, our skepticism.

The Interrelationship of High Blood-Pressure and Renal Disease

Dr. E. L. Tuohy, Duluth: We may arbitrarily speak of three groups: 1. This group comprises those individuals with so-called hypertension, varying pressure going up to 170. A patient in this group probably needs his life, work, diet, and habits corrected. 2. Where the pressures register from 165 to 185, and are inclined to remain there, we may infer that there is a general arteriosclerosis, in which the kidneys are taking part. A sclerosis of the splanchnic vessels may be responsible for this extra rise of 15 to 20 points, instead of the kidneys, but splanchnic sclerosis is very infrequent. 3. This group with the systolic pressures persisting above 185, and the higher they go, the more definite they become, we may look unerringly to a true nephritis as their source. Careful observation of the urine and the amount passed in twenty-four hours will show us the signs confirmatory of chronic interstitial nephritis.

Meddlesome and misapplied therapy in the first two groups can do little harm. In the third it can work great havoc. It should never be forgotten that the high blood-pressure is Nature's method of retaining compensation. This does not mean that there is no therapy. A determination of the cause of the nephritis in the beginning should theoretically stay its course. If found in its full development, with restriction of the fluids taken into the body and the proper ordering of the patient's life, coupled with the reduction of the blood-pressure within moderate limits, immense relief from many symptoms is afforded, more particularly those of a nervous nature. Undue lowering of the pressure invites uremia. If he is in the stage of decompensation, his condition is by no means hopeless. The resources shown by Nature in carrying him so far as she has still attend him, and a little conservative assistance on the part of the physician may greatly extend his allottment of years.

DISCUSSION

DR. GEORGE DOUGLAS HEAD, Minneapolis: What is the cause of hypertension in nephritis? It is not caused by thick rigid arterial walls, since many cases of nephritis with high tension have elastic, pliable arteries. Furthermore, thick, pipe-stem arteries do not always mean high arterial tension. The toxic substances which a damaged kidney fails to excrete do not of themselves cause high blood-pressure. In many cases of acute nephritis, with scanty urine and diminished excretion of solids and fluids, the blood-pressure is normal or below normal. In my experience, acute nephritis is not often accompanied by an increase of blood-pressure. Extensive glomerular disease has very little to do with high blood-pressure, since in most cases of waxy kidney, very little, if any, increase of blood-pressure and almost no cardiac hypertrophy are encountered. Bright in his original study of nephritis suggested that the altered composition of the blood, due to a failure of the kidneys to eliminate waste product, thus bringing on a vasomotor spasm of arteries and arterioles, was the cause of hypertension and hypertrophy of the heart. Experimental evidence is not lacking to support this view.

The Importance of Orthopedic Treatment in Tuberculous Joints, Based on Twenty-Five Years' Experience in Four Thousand and Ten Cases

DR. ARTHUR J. GILLETTE, St. Paul: Some years ago absolute rest in bed for months and even years was advocated, but the results obtained were not any better than those obtained in cases which were allowed what we might now call "graded labor." In cases where the limb is perfectly straight a brace can be applied which will hold it so that the patient has no pain or temperature, or if there is a deformity which can be adjusted so as to overcome the deformity as much as possible gradually, and when overcome will allow the patient to be up and about, the more he is out of doors the better. Tuberculous diseases of the joints are benefited by fresh air just as much as tuberculosis of the lungs, and exercise is also beneficial as long as it is not carried to the point of exhaustion. If a patient has a temperature after being up and about, if no other cause can be found to account for it, he should be put to bed and should remain there as long as he continues to have a temperature above 99 F. Children or adults should not be allowed to consider themselves as invalids. Children should go to school and play, and adults should do some work suitable to their condition. Medical treatment is of the greatest importance. If a patient is anemic he should have iron, and if fleshy, beechwood creosote. Oils and fats are also very important for the thin cases. The use of cod-liver oil has been practically abandoned by us because very few children can take it. They will take butter, eggs, milk, beef and meat juices. If we will only keep in mind that the orthopedic treatment simply prevents deformity and pain, and is of immense importance in this way, and that a tuberculous disease of the joints is only a local manifestation of a constitutional disease, and while we are treating the joint do not forget that it is attached to a human being whose constitution needs building up, if you expect local improvement, then we will be treating tuberculosis of the bones and joints as it should be treated by an orthopedic surgeon.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

September, XXXIV, No. 9, pp. 509-572

1 Technic of Delivery Room; Delivery of Patient; Abnormal Presentations and Complications and Their Treatment. T. S. A. O'Connor, Troy, N. Y.
2 Uterine Inertia. P. T. Harper, Albany, N. Y.
3 Pelvic Cellulitis. D. C. Moriarta, Saratoga Springs, N. Y.

American Journal of Orthopedic Surgery, Philadelphia

July, XI, No. 1, pp. 1-191

4 Lateral Spinal Curvature. A. G. Cook, Hartford, Conn.
5 Movements or Positions of Normal Spine and Their Relations to Lateral Curvature. E. G. Abbott, Portland, Me.
6 *Corrective Jackets in Treatment of Structural Scoliosis with Special Reference to Mensuration and Record. A. H. Freiberg, Cincinnati, Ohio.
7 Scoliosis, Its Prognosis. J. L. Porter, Chicago.
8 *Correction of Fixed Types of Lateral Curvature, Complicated by Visceral Derangements, Especially Those of Cardiac Variety, with Slight Modification of Abbott's Method. R. O. Meisenbach, Buffalo, N. Y.
9 History of Scoliosis. R. W. Lovett, Boston.
10 What To Do After Corrective Jackets Are Removed. E. H. Bradford, Boston.
11 *Rotation Treatment of Scoliosis. A. M. Forbes, Montreal.
12 Treatment of Lateral Curvature of Spine by Forbes Method. Z. B. Adams, Boston.
13 Gymnastics for Crippled Children. M. T. Sweeny, Boston.
14 Spontaneous Fracture in Carcinoma of Bones. G. W. Hawley, Bridgeport, Conn.
15 Tendon Fixation-Operation for Prevention of Deformity in Infantile Paralysis. W. E. Gallie, Toronto, Ont.

6. **Treatment of Structural Scoliosis.**—As the result of his experience with Abbott's method Freiberg believes that it is possible to secure the reversal of the elements of deformity in some of the cases of structural deformity by Abbott's method. It appears that in quite a number of cases the means of correction cannot be exhausted in one jacket. Freiberg thinks it is probably better to remove the original jacket at the end of six weeks to ascertain what further needs to be done and what can be done. It is Freiberg's conviction that this method of applying corrective jackets constitutes a great advance and that the correction which we do secure is much greater than we have obtained by former methods. Whatever discomfort is involved is usually justified by increased efficiency.

8. **Fixed Types of Lateral Curvature.**—Keeping Abbott's cardinal principle before him, that is, to thoroughly flex the spine in applying the jacket, Meisenbach added somewhat more felt than ordinarily to the posterior part of the spine, with the hope of obtaining more flexion and gradual pressure later on. To obtain this, a window is also cut over the point of most pressure, and a steel trap-door so arranged that additional felt may be added at will and pressure applied with a wrench. This has permitted four or five thicknesses of felt, whereas one or two only could have been used by the other method of attempting to add felt to the window. The pressure then can be gradually added and correction obtained some weeks after the corrective jacket has been applied. By

this method, the pulse and blood-pressure can be followed thoroughly, and if there is too much pressure, less be applied. It also has the advantage that in cases of sloughs they can be dressed and the pads so arranged as to avoid pressure over them.

Meisenbach emphasizes that it is surprising to see how small a change of blood-pressure takes place when the rotary force and flexion are applied. Patients troubled by ptosis and gastric symptoms may improve in general health with a disappearance of symptoms after the spine has been corrected. The hemoglobin may often increase its percentage after the spine has been corrected, and without medication. Meisenbach would not make it the rule to attempt to build patients up by medication, and thereby lose time in spinal correction, but after the spine is corrected, he says, these measures may be undertaken with better success. Cardiac lesions, especially functional, due to pressure, may improve after correction, and are not increased. In cases of the severest types with great deformity of spine and derangement of viscera, treatment should be undertaken cautiously, with a view of improving the general condition of the patient.

11. **Rotation Treatment of Scoliosis.**—Forbes' rotation treatment of scoliosis aims at causing the correction of the deformity by the production of its counterpart. The production of physiologic scoliosis of an opposite character to the pathologic scoliosis which already exists is undertaken by rotating the patient's thorax on a fixed pelvis in a direction toward the side of the convexity of the curve. In thus producing physiologic scoliosis of an opposite character to the pathologic scoliosis from which the patient suffers, he not only changes the curve of the spinal column but also changes the deformity of the thoracic walls; that side which bulges unduly is flattened, and the flattened side is filled out. Forbes again describes his method in detail.

American Journal of Public Health, New York

September, III, No. 9, pp. 845-976

16 Organization, Powers and Duties of United States Public Health Service To-Day. J. F. Anderson, Washington, D. C.
17 Recent Contribution of Federal Government to Preventive Medicine and Health Conservation. A. R. Perry, Washington, D. C.
18 Experiment in Public Health Administration. E. B. Phelps, Boston.
19 Does American Federation for Sex Hygiene Speak the Truth? R. N. Willson, Philadelphia.
20 [illegible] Chronic Prostatitis. A. P. Hitchens and C. P. [illegible], D. C.
21 [illegible] with Special Reference to Dairy Farms. S. C. Prescott, Boston.
22 City Life in Relation to Tuberculosis: Plea for Better Surroundings for Factories and Better Homes for Working Classes. I. W. Brewer, Fort Niagara, N. Y.
23 Relation of Water to Chronic Intestinal Tract Infection. N. S. Hill and L. R. Whitcomb, Washington, D. C.
24 Croton Bug (Ectobia Germanica) as Factor in Bacterial Dissemination. W. B. Herms and Y. Nelson, San Francisco.
25 *Water of Lake Michigan. M. P. Ravenel and E. J. Tully, Madison, Wis.
26 Significance of Time at which Gas Is Produced in Lactose Peptone Bile. W. W. Browne, New York.

25. **Study of Water of Lake Michigan.**—As a result of their studies, the authors state that the water of Lake Michigan along the Wisconsin shore is not a uniformly safe source of supply. The water is polluted and at times quite heavily so, even out to a distance of seven miles from shore. The chemical and bacteriologic data conclusively indicate that there are no permanent currents in this portion of the lake, and that sewage once deposited in it may be carried to various points, depending on the direction and force of the wind. The prevailing currents cannot be depended on to insure safety, owing to storms, and even winds of moderate force which continue for several days will modify these currents. Even in those instances in which ledges of rock are supposed to form a barrier, safety is not insured. They conclude that to insure a safe supply from the lake, the intake should be carried out twelve to fifteen miles from shore. Owing to the depth of the water this is in many cases impractical and involves great expense. There are only two other procedures left open. One is the purification of sewage, which would be only a partial remedy, and the other is the filtration of the water before carrying it into city mains. In any case it seems that cities should cease the pollution of the lake by the dumping of their sewage into it.

This does not entirely meet all the requirements in the case, owing to the enormous amount of shipping on the lakes. Thousands of passengers on steamships are discharging their excreta daily during the larger part of the year into the water along the shore, especially in and about harbors. It seems probable that in spite of sewage purification, which should be undertaken in any event, that the demand for filtration will increase yearly, and that eventually all these cities will be obliged to furnish filtered water to their inhabitants. In the meantime, the use of hypochlorite of calcium has been recommended, and used in a number of instances with the most satisfactory results. This must always, however, be regarded as only a temporary expedient. The Great Lakes must still be looked on as a most useful and inexhaustible source of supply, but more care must be exercised in the future in preserving their purity and in selecting the locations for water-supply plants.

Archives of Pediatrics, New York

September, XXX, No. 9, pp. 641-719

27 Dangerous Middle-Ear Suppuration. I. W. Voorhees, New York.
28 *Vulvovaginitis in Young Children: Its Control and Successful Treatment. N. Barnett, New York.
29 Complement Fixation Test for Gonorrhea. A. McNeill, New York.
30 Roentgenoscopy of Chest in Tuberculous Meningitis. I. O. Woodruff, New York.
31 Tuberculin Skin Reactions in Infancy. A. Brown, New York.
32 Cisterna-Sinus Drainage for Hydrocephalus. I. S. Haynes, New York.
33 *Trache[illegible] due to Thymus. H. L. Lynah, New York.
34 Case [illegible] Thoracis Treated by Successive Rib [illegible] New York.

28. **Vulvovaginitis in Children.**—In Barnett's series of twenty-six cases the following complications were present: arthritis of the shoulder, 1; arthritis of the wrist, 1; chronic general peritonitis, 1; pelvic peritonitis, 2, and painful heel, 1. The patient in the latter case was 11 years old and a roentgenogram showed a periosteal exostosis. Burning sensation on urination occurred in 30 per cent. of the cases. The irrigating solutions Barnett has used were potassium permanganate, 1-1,000; bichlorid of mercury, 1-4,000; Lugol's solution of iodin, 1-500. For instillations 1 or 2 grams of nitrate of silver ¼ per cent. and argyrol 10 per cent., were injected through a small catheter and retained three to five minutes. A cotton applicator saturated with nitrate of silver, 10 per cent., was also used to swab the vaginal wall.

Fourteen girls were treated with vaccines at intervals of three to seven days in doses of from five to one hundred millions. The injections were generally made in the buttocks. Each of the above methods received a most painstaking trial, and Barnett has finally adopted the following mode of treatment: The mother is instructed at the clinic in the method of giving the vaginal douche and in preparing the permanganate solution, 1-10,000 or thereabouts. This injection is to be given in the homes daily. The patient is put on small daily doses of hexamethylenamin. In the clinic the patient is treated with the electric endoscope. The child is placed on the bed-pan in the dorsal position, the foot of the table being raised to an angle of 30 degrees.

As to the complications, both cases of arthritis showed rapid improvement with complete cure of the arthritis following the use of vaccines, but the vaginal discharge did not diminish in either case, and the vaccine treatment was therefore suspended in both cases. In both cases of pelvic peritonitis treatment was suspended for an indefinite period. No vaccines were given in these cases. The painful heel was improved by the vaccine treatment, but at times there was a recurrence of severe pain at varying intervals. Of the twenty-six cases studied only seven were cured at the end of six months by irrigation alone. Seven of these cases after irrigation had failed have been treated with the endoscope, and five of these were cured in one month. Five additional cases of the twenty-six which had failed to improve on irrigation are now being treated with the endoscope and are rapidly improving.

33. Tracheal Obstruction Due to Thymus.—The interesting points of Lynah's case are that the dyspnea caused by the enlarged thymus was relieved by intubation, but returned shortly after the removal of the tube, that the patient, aged 3½ years, being of a type associated with status lymphaticus, could receive two injections of antitoxic serums without any anaphylaxis or fatal result and only have a slight erythema following the administration of the first dose; that the child, while asthmatic since birth, has never had convulsions. The child was wheezing like an old asthmatic. There was an area of dulness over the upper end of the sternum, the upper limit of the first intercostal space extending downward to about the fourth intercostal space; the lateral diameter from 3 cm. to the right of the median line and 2 cm. to the left.

Boston Medical and Surgical Journal

October 9, CLXIX, No. 15, pp. 521-556

35 Importance of Education in Tuberculosis Campaign. L. A. Jones, North Adams, Mass.
36 Tuberculosis Problem from Point of View of Local Boards of Health. B. H. Pierce, Cambridge, Mass.
37 Need of Cooperation between Local and State Forces in Tuberculosis Work. J. B. Hawes, Boston.
38 Value of Roentgenoscopy of Chronic Appendicitis and Inflammatory Conditions, Both Congenital and Acquired, about Cecum and Terminal Ileum. A. W. George and I. Gerber, Boston.
39 Medical Contributions of State Board of Insanity of Massachusetts. E. E. Southard, Boston.
40 Our Little Balloons: Some Observations on Gas and Ptosis. E. A. Codman, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXIV, No. 272, pp. 295-326

41 *Development of Antibodies in Serum of Patients Recovering from Acute Lobar Pneumonia. P. W. Clough, Baltimore.
42 Piroplasmosis: Lectures on Herter Foundation. G. H. F. Nuttall, Baltimore.
43 Enterogenous Mesenteric Cysts. R. T. Miller, Pittsburgh.
44 Salvarsan in Pernicious Anemia. T. R. Boggs, Baltimore.
45 Etiology of Arteriosclerosis. C. Frothingham, Boston.

41. Development of Antibodies.—The results of his experiments are summarized by Clough as follows: Of twelve cases, in which satisfactory protection tests were carried out with the serums of patients after crisis, or lysis, using the homologous strain of pneumococcus, nine had serums which showed definite protective power for mice as compared with normal serum. The serums of three gave negative results; in these three cases but one specimen of serum was tested. In two of the cases, the serum of which showed protective power after the crisis, specimens of serum obtained during the acute stage of the disease showed no such power. Further, in two other cases, one fatal, in which the serum was examined only during the acute stage, no protection was manifested. These serums, which protected mice from the homologous strain, were also tested with an heterologous strain, and showed no protective power toward that strain. Occasionally protective power cannot be demonstrated unless the serum is tested at frequent intervals during convalescence.

With but two exceptions, all the strains isolated were not phagocytable in fresh normal human serum, and were presumably virulent for man. The two other strains, which seemed identical with one another in every respect, were highly virulent for mice. As one was cultivated from the blood of a patient a few days before death, it seems most reasonable to regard it as also virulent for man, in spite of its phagocytability in normal human serum. This suggests the advisability of greater caution in assuming that the virulence of an organism for man is always parallel with its resistance to phagocytosis in the test-tube.

Of eleven cases in which the phagocytic activity of the serum after crisis, or lysis, was tested *in vitro*, six showed definite activity. In five, negative results were obtained. In some of these, at least, positive results would probably have been obtained had suitable variations in technic been employed. This activity has a significance which is quite different from that of a rise in opsonic index, which has often been described, but is qualitatively comparable with the activity of potent immune serum, in that it brings about active phagocytosis of a virulent pneumococcus, not phagocytable in normal human serum. In two of these cases serum examined before the crisis showed no such activity. The serum of a fatal case was also inactive. This phagocytic activity, with one exception, was strictly limited to the homologous strain, derived from the patient whose serum was being tested.

The active substances in the serum are bacteriotropins, in the sense of Neufeld, since they resist heating at 56 C., and persist in the serum *in vitro* for a considerable period. In both of two cases tested, phagocytosis in the peritoneum of the mouse closely paralleled phagocytosis in the test-tube. Intracellular digestion of the cocci, as shown by changes in staining reaction, was marked in both cases. The phagocytic activity of the serum ran closely parallel with its protective power for mice, both in incidence, in time of appearance and in strict specificity as to the strain of pneumococcus affected. It, therefore, seems justifiable to Clough to conclude that the protective action of the serum depends on, and is due directly to, its power of promoting phagocytosis.

Cleveland Medical Journal

August, XII, No. 8, pp. 513-580

46 Tumors of Carotid Body with Report of Two Cases. A. Graham, Cleveland.
47 Contribution to History of Magnet as Applied to Ophthalmic Surgery. H. G. Sherman, Cleveland.

Journal of Experimental Medicine, New York

48 *Fate of Tartrates in Body. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
49 *Tartrate Nephritis, with Special Reference to Some Conditions under Which It May Be Produced. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
50 *Study of Renal Secretion During Tartrate Nephritis. F. P. Underhill, H. G. Wells and S. Goldschmidt, Chicago.
51 *Circulation in Man: Blood-Flow in Feet. G. N. Stewart, Cleveland.
52 *Idem: Blood-Flow in Feet with Special Reference to Fever. G. N. Stewart, Cleveland.
53 *Study of Blood in Rats Recovered from Implanted Sarcoma. R. Weil, New York.
54 *Mechanisms of Metastasis Formation in Experimental Cancer. I. Levin, New York.
55 Influence of Temperature and Fluid Medium on Survival of Embryonic Tissues in Vitro. R. A. Lambert, New York.
56 *Regeneration of Axis Cylinders in Vitro. R. Ingebrigtsen, New York.
57 Resistance to Tumor-Producing Agent as Distinct from Resistance to Implanted Tumor Cells. P. Rous, New York.
58 Effect of Intraspinous Injections of Salvarsan and Neosalvarsan in Monkeys. A. W. M. Ellis and H. F. Swift, New York.
59 *Study of Spirocheticidal Action of Serum of Patients Treated with Salvarsan. H. F. Swift and A. W. M. Ellis, New York.
60 *Electrocardiographic Study of Anaphylactic Rabbit. J. Auer and G. C. Robinson, New York.
61 *Experiments on Cultivation of Microorganism Causing Epidemic Poliomyelitis. S. Flexner and H. Noguchi, New York.

48. Fate of Tartrates in Body.—Under the experimental conditions outlined by the authors, sodium tartrate subcutaneously introduced into rabbits failed to reappear in the urine. It is concluded that the disintegrative influence of the salt on the convoluted tubules is sufficient to account for the failure of the salt to be eliminated. No evidence of a vicarious function on the part of the glomerulus was observed.

49. Tartrate Nephritis.—It is indicated that the introduction of a sufficiency of alkali into animals in a state of fasting permits a greater elimination of urinary constituents during tartrate nephritis than obtains under similar circumstances when the alkali is omitted. Histologically there is evidence that the administration of alkali exerts a slight modifying action.

50. Renal Secretion during Tartrate Nephritis.—After the intravenous introduction of a solution containing sodium chlorid and urea into the rabbit during pronounced tartrate nephritis, all the chlorid reappeared in the urine within forty-eight hours. On the other hand, the nitrogen of the urine remained far below that usually eliminated by the normal animal under the experimental conditions; in other words, little or none of the urea injected was excreted by the kidney. In the light of the histologic findings these results are interpreted by the authors to mean that under normal conditions chlorids and water are passed through the glomerular mechanism, whereas urea becomes a urinary constituent by way of the convoluted tubules. These results constitute a direct confirmation of the older observations of others concerning the elimination by the kidney of the substances under discussion.

No evidence was obtained that the glomerulus may take over the function of the tubular epithelium.

51. **Blood-Flow in Feet.**—The blood-flow in the feet, according to Stewart, is smaller per unit of volume of the part than in the hand, the ratio of foot flow to hand flow per 100 cubic centimeters of the part usually lying in normal persons between 1 to 3 and 1 to 2. In the supine position, with the legs hanging down, the flow in the feet seems to be somewhat greater than in the sitting position.

52. **Blood-Flow in Feet and Fever.**—In the cases of fever investigated by Stewart the flow in the feet never exceeded the normal flow and was usually much below the normal. In explanation of the relatively small foot flow in the fever cases it is suggested that the vasoconstrictor mechanism of the peripheral parts, especially of the skin, is abnormally excited, and some direct evidence that this is the case is brought forward. The significance of this hypersensitiveness, or at least increased action, of the cutaneous vasoconstrictor mechanism is assumed to be that the peripheral vasoconstriction is a compensatory arrangement which secures for the organs mainly suffering from the infective process an increased flow of blood. On this hypothesis the rise of temperature is, chiefly at least, secondary, inevitably following the vasoconstriction, provided that the metabolism is, on the whole, not diminished. Accordingly the rational treatment of hyperpyrexia or of pyrexia if it is considered necessary to treat it, is to abstract heat by a process which will not diminish and may even increase the cutaneous vasoconstriction. This condition is exactly fulfilled by the cold bath, at least as regards its initial effect. Other so-called tonic effects of the cold bath are not considered here. Antipyretic drugs which act by dilating the cutaneous vessels would seem to be inferior in this regard. They diminish the temperature, it is true, but at the cost of defeating the beneficial redistribution of the blood which it is the function of the peripheral vasoconstriction to insure.

It is obvious, says Stewart, that for the elimination of a given quantity of heat from the skin by radiation and conduction in fever, a smaller cutaneous blood-flow will suffice than with normal body temperature, since the elimination of heat per gram of blood passing through the surface must be greater in fever owing to the greater difference of temperature between the surface of the body and its surroundings.

53. **Blood in Rats Recovered from Implanted Sarcoma.**—The studies reported by Weil were made in the attempt to determine whether the factor of immunity can be demonstrated in the blood of animals which have recovered from implanted tumors. Two series of experiments were carried out, each from a different point of view. In the first series large amounts of immune blood plasma were injected into animals with growing tumors, and also into normal animals subsequently implanted with tumors, in order to determine the effect on the tumor process. Twenty-four young white rats were included. These were divided into two equal lots of twelve each. Of the first lot, six rats received intravenous injection into the jugular vein of 1 c.c. of plasma, obtained from recovered rats. One cubic centimeter represents the average amount of plasma which it was possible to obtain from one rat. The other six received 2 c.c. of the same plasma intraperitoneally. On the day following this injection all the animals received a subcutaneous inoculation, by the trocar method, of rat sarcoma.

After ten days the animals were examined. Of the treated series, nine, and of the untreated series, ten, showed growths. On the eighteenth day the animals were again examined. Of the treated series ten remained alive, of which again nine showed tumors. Of the untreated series the total number remained alive, and ten showed tumors. There were no quantitative differences discernible in the average growth of the tumors. On the thirtieth day there had been retrogression in all except four of the treated series, and in all except three of the untreated series. At this point the observation of both series was discontinued. The conclusion was drawn that the preliminary inoculation of immune serum does not protect rats against subsequent implantation of tumors and does not noticeably influence the rate of growth nor the percentage of retrogressions in such tumors.

In another series of animals the conditions of the experiment were varied by making, in addition to the preliminary treatment with immune serum on the day preceding the tumor inoculation, a subsequent injection of serum five days thereafter. The treatment produced no therapeutic effect. Weil states that theoretically it is possible that immune substances may be ineffective in preventing successful implantation, whereas they may be of importance in controlling growth. In order to determine this point rats were selected whose tumors had shown progressive growth, and had reached a size measuring not less than 1.5 centimeters in diameter. Fourteen animals were selected for treatment. All the animals had been inoculated twenty-five days previously. There were 100 per cent. of takes; and on the day on which observation began all of the tumors were actively growing and showed no ulceration. The rate of growth of each tumor was plotted by a second observation made ten days later, or on the thirty-fifth day after inoculation. On that day each of the animals received an injection of immune plasma. In all the animals three further injections at intervals of two days were made intraperitoneally. All but two of the animals survived the treatment and were in good condition. In all the twelve that survived, except two, there had been continuous striking increase in the growth of the tumor, which at this stage is unusually active. In the two exceptions there had been retrogression which, in one, had been almost complete. Comparison with the controls brought out the fact that the percentage of retrogressions in this series was greater by 12 per cent. than in the treated animals. The conclusion is drawn that the repeated injection of plasma, derived from immune rats, failed to influence favorably the growth of a certain strain of rat sarcoma. Therefore, as far as the results of this series of experiments justify generalization, it is concluded that the blood of recovered rats does not carry the factor of immunity present in these animals.

In the second series of experiments, recovered rats received a series of subcutaneous inoculations of tumor extract, in order, if possible, to heighten their immunity. The animals were then bled and the plasma was injected into guinea-pigs, as in the previous series. In this series again, however, there was complete failure to demonstrate sensitization. The conclusion is therefore drawn that it is impossible, by means of the passive sensitization of guinea-pigs, to demonstrate the presence of immune substances in the blood of rats recovered from an implanted sarcoma, or in the blood of rats recovered from this tumor and subsequently injected therewith.

54. **Metastasis Formation in Experimental Cancer.**—The analysis of the results of Levin's investigation shows that the differences in the frequency of the occurrence and in the specific localization of metastases are not due to the ease of detachment of the cancer cells from the primary tumor. Nor does the difference in the mode of transportation play a part. The main factors in determining the localization and frequency of metastases are the character and malignancy of the cancer cell on the one hand, and the general and local susceptibility of the organism of the host on the other. The failure or success of the proliferation of a group of cancer cells transported from the primary tumor into a distant organ is a result of the interaction of these two causes.

56. **Regeneration of Axis Cylinders in Vitro.**—It is shown for the first time by Ingebrigtsen that nerve fibers grow out from pieces of cerebellum of young cats and guinea-pigs when culitvated in coagulated plasma. The same phenomenon has been observed in cultures of spinal ganglia. The nerve fibers do not anastomose and they extend into the plasma unaccompanied by structures of any kind.

59. **Spirocheticidal Action of Serum of Patients Treated with Salvarsan.**—The authors found that the serum of rabbits treated intravenously with neosalvarsan, and of syphilitic patients treated intravenously with salvarsan or neosalvarsan, has a definite spirochaeticidal action on *Spirochaeta*

duttoni. Although this spirocheticidal action is exerted *in vitro* it can be demonstrated only after the treated spirochaetae are injected into susceptible animals. A curative action of the serum of neosalvarsan-treated rabbits is exercised on mice infected with *Spirochaeta duttoni.* The spirocheticidal action of the serum of salvarsan treated rabbits and patients is markedly increased by heating at 56 C. for thirty minutes. The increased spirocheticidal action produced by heating is due in part to the destruction of some inhibitory substance contained in normal serum and in part to a direct effect of the heat on the serum and salvarsan mixture. Cerebrospinal fluid does not contain the inhibitory substance present in normal unheated serum.

60. **Electrocardiographic Study of Anaphylactic Rabbit.**—Electrocardiographic examination of rabbits during the anaphylactic reaction by Auer and Robinson revealed marked and various changes of the heart's activity in twenty-two out of twenty-four animals. Changes occurred in fatal as well as in non-fatal cases, after the vagi were cut as well as when they were intact. Cardiac disturbances are thus a practically constant result of serum anaphylaxis in the rabbit. The authors suggest that it therefore is possible that anaphylaxis plays a rôle in the causatiaon of certain cardiac derangements in man.

61. **Microorganism Causing Epidemic Poliomyelitis.** — By employing a specially devised method Flexner and Noguchi have cultivated from the central nervous tissues of human beings and monkeys the subjects of epidemic poliomyelitis a peculiar minute organism that has been caused to reproduce the symptoms and lesions of experimental poliomyelitis. The microorganism consists of globoid bodies measuring from 0.15 to 0.3 of a micron in diameter, and arranged in pairs, chains and masses according to the conditions of growth and multiplication. The chain formation takes place in a fluid medium, the other groupings in both solid and fluid media. Within the tissues of infected human beings and animals the chains do not appear. No statement is ventured by the authors as to the place among living things to which the bodies belong. It is obvious that the cultural conditions are those that apply more particularly to the bacteria. The microorganism passes through Berkefield filters and the filtrates yield on recultivation the particular microorganism contained within the filtered culture. By employing a suitable staining method the microorganism has been detected in film preparations and sections prepared from human nervous tissues, and from the corresponding tissues of monkeys inoculated with the usual virus or with cultures or filtrates prepared from monkeys previously injected with cultures.

From all the infected materials mentioned, irrespective of the manner of their origin, the microorganism has been recovered in cultures. As would be expected, it is more uniformly recoverable from the original nervous tissues than from filtrates and doubtless for the reason that in the former it exists in greater abundance. An etiologic relationship has been shown to exist between the cultivated microorganism and epidemic poliomyelitis as it occurs in human beings or in monkeys. The authors describe their technic fully.

Journal of Outdoor Life, New York

October, X, No. 10, pp. 288-318

62 Campaign Against Tuberculosis in Norway. H. L. Shively, New York.
63 Doings of a Tenderfoot. F. T. Dawson, Schenectady, N. Y.
64 Advertising for Early Cases of Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.

Medical Record, New York

October 11, LXXXIV, No. 15, pp. 645-690

65 Modern Treatment of Tabes. J. Collins, New York.
66 *Use of Tuberculin in Diagnosis of Obscure Conditions in Genito-Urinary System. E. Beer, New York.
67 Paroxysmal Attacks of Metatarsal Pain. C. K. Austin, Paris, France.
68 Rational Treatment of Acne Pustulosa with Special Reference to Bacterins. P. G. Skillern, Philadelphia.
69 Social Service in Hospitals and Dispensaries. I. M. Stewart, New York.
70 Bacteriemia in Pneumococcus Infection of Rabbit. G. A. Rueck, New York.
71 New Method for Detecting Occult Blood in Gastric Cases. A. L. Holland, New York.
72 Method of Preparing Nerve Tissues for Microphotography. H. A. Sims, Montreal.
73 Small Self-Retaining Retractor for Superficial Dissections. K. Bulkley, New York.

66. **Tuberculin in Diagnosis of Obscure Conditions in Genito-Urinary System.**—Beer emphasizes the fact that the use of old tuberculin as a diagnostic aid should not be ignored, that it has a definite field of usefulness as an adjunct to other methods and it should regularly be employed only after other methods have rendered an unclear verdict, that is, in obscure cases, and then with carefulness and precautions.

Michigan State Medical Society Journal, Grand Rapids

October, XII, No. 10, pp. 513-568

74 District Supervision of Public Health. W. H. Sawyer, Hillsdale.
75 Public Health. C. J. Larson, Negaunee.
76 Some Diagnostic Points in Diseases of Eye and Nose, of Interest to General Practitioner. C. R. Elwood, Menominee.
77 Pleurisy as Considered by General Practitioner. W. S. Picotte, Ishpeming.
78 Trigeminal Neuralgia. H. M. Cunningham, Marquette.
79 Diagnosis and Treatment of Extra-Uterine Pregnancy. E. H. Flynn, Marquette.
80 Appendicitis in Infants. C. B. Gardner, Alma.

Military Surgeon, Chicago

September, XXXIII, No. 3, pp. 201-296

81 Greatest Battle of War—Gettysburg. L. C. Duncan, U. S. Army.
82 Gettysburg Veterans' Encampment from Medical Standpoint. H. S. Baketel, U. S. Army.
83 What Is Best Organization of Medical Department of Fleet for Battle, with Special Reference to Fleet Surgeon? C. N. Fiske, U. S. Navy.
84 Comparison of Recruits Accepted for Army During Different Periods Since Civil War, Based on Pignet's Factor. H. W. Jones, U. S. Army.
85 Egyptian Hospital Ship "Bahr Ahmar" of Red Crescent Mission. D. U. Carpenter, U. S. Navy.
86 Iodin Idiosyncrasy. A. G. Wilde, U. S. Army.
87 Cooperation Between Federal, Municipal and Naval Authorities in Prevention of Venereal Disease. G. B. Trimble, U. S. Navy.

Modern Hospital, St. Louis

September, I, No. 1, pp. 1-68

88 *Vast Increase in Number and Variety of Institutions Is Chief Factor in Reshaping Modern Society. A. J. Ochsner, Chicago.
89 Modern Naval Hospital. A. W. Dunbar, Washington, D. C.
90 Passing of "Hospital Unit." S. S. Goldwater, New York.
91 *Surgical Unit; European and American Architecture Compared—Description of Equipment. E. F. Stevens, Boston.
92 The Sanatorium—Yesterday, To-Day, To-Morrow. J. G. Mumford, Clifton Springs, N. Y.
93 Peter Bent Brigham Hospital. H. B. Howard, Boston.
94 The English National Insurance Act. S. Johnson, London.
95 Admission of Tuberculosis Cases to General Hospitals. T. B. Sachs, Chicago.
96 Social Service in Hospital. R. Shaeffer, Chicago.
97 Ownership of Roentgenograms. E. H. Skinner, Kansas City, Mo.

88. **Hospital Growth Marks Dawn of New Era.**—The modern hospital, says Ochsner, gives the public vastly more in the way of facilities for diagnosis, for furthering the progress of the case, with the smallest possible amount of discomfort. It provides for every form of apparatus for investigation during the entire period that the patient is confined to the institution. It provides facilities for all patients which could not have been commanded even by the very wealthiest persons only a quarter of a century ago, and it is but natural that such facilities must be expensive, but, with all of this, it is well not to lose sight of the fact that in the development and maintenance of these features there is great danger of enormous extravagance on the one side and hopeless waste on the other until the standardization of hospitals has been developed from the economical side by capable hospital specialists, and until those interested have been made familiar with this development through an advanced hospital journalism.

91. **The Hospital Unit.**—The hospital unit in Goldwater's opinion has served its day and purpose. To-day it is a stumbling-block in the road to hospital progress. Let us, therefore, by a common effort put it aside and turn to it only as we have need for it. No longer should it be permitted to occupy the middle of the road. He who looks on the hospital

unit as a miniature but complete hospital has failed to read aright the signs of the times. To-day the hospital unit is dependent not only on the central equipment of power plant, domestic service, etc., but on other ward units, designed primarily for other and specialized work. The internist, the general surgeon, the regional specialist, can no longer stand alone: therefore the ward unit, which is the clinician's workshop, has ceased to be an independent unit. The needs of the patients determine the right relation of members of the hospital staff to each other; to facilitate their relations is the great aim of modern hospital organization and construction. A single ward and its accessories no longer constitute a "hospital unit." To-day a ward is an incomplete fragment—the hospital is itself the unit.

New Jersey Medical Society Journal, Orange

October, X, No. 5, pp. 221-274

98 Uterine Hemorrhage. W. Freile, Jersey City.
99 Few Points in Clinical Treatment of Chronic Nephritis. W. B. Stewart, Atlantic City.
100 Treatment of Syphilis. A. S. Clark, New York.
101 Psychoses Associated with Childbearing. W. C. Sandy, Kings Park, N. Y.
102 Treatment of Some Cases of Dystocia of First Stage. A. R. Chamberlain, Maplewood.
103 Correction of Errors of Refraction as Prophylactic Measure. S. E. Pendexter, East Orange.
104 Pulmonary Tuberculosis. M. I. Marshak, Bayonne.

New Orleans Medical and Surgical Journal

October, LXVI, No. 4, pp. 269-342

105 Pelvic Infection with Special Reference to Needs of General Practitioner. S. M. D. Clark, New Orleans.
106 Emetine Hydrochlorid in Treatment of Amebic Dysentery. R. Lyons, New Orleans.
107 Operative Treatment of Inaccessible Vesico-Vaginal Fistulae. F. W. Parham, New Orleans.
108 Frequency and Causes of Stillbirth. W. D. Phillips and M. T. Lanaux, New Orleans.
109 Cases of Eclampsia. C. McVea, Baton Rouge.
110 Case of Cervical Myoma. M. A. Shlenker, New Orleans.
111 Quinin and Tetanus. F. W. Parham, New Orleans.

New York Medical Journal

October 11, XCVIII, No. 15, pp. 697-744

112 *Differential Diagnosis of Appendix by Roentgenoscopy. A. J. Quimby, New York.
113 Movements of Two Halves of Chest in Disease. L. N. Boston and J. F. Ulman, Philadelphia.
114 Tubercular Leprosy in Negress. J. L. Kirby-Smith, Jacksonville, Fla.
115 Roentgen Diagnosis of Diseases of Chest and Abdomen. L. Clendening, Kansas City, Mo.
116 Vagitus Uterinus. J. H. Telfair, New York.
117 Intravenous Injection of Salvarsan and Neosalvarsan. D. T Miller, Terre Haute, Ind.
118 Physicians in English Literature. J. B. Neary, New York.
119 Value of Immunized Milk as Prophylactic and Cure for Typhoid and Tuberculosis Infection. J. Rosenberg, Margaretville, N. Y.

112. Differential Diagnosis of Appendix by Roentgenoscopy.—In the examination of 141 cases between May 1, 1913, and September 15, 1913, data were obtained by Quimby which enabled him to classify the appendix roentgenographically. Of this number, fifty patients had had laparotomies previous to the examination in which the appendix had been removed. Of the remainder, 90 per cent. gave sufficient data to determine the position and condition of the appendix. The remaining 10 per cent. were those in whom the position of the cecum prohibited its thorough inspection.

Ohio State Medical Journal, Columbus

September, IX, No. 9, pp. 403-462

120 Acute Pancreatitis. J. F. Erdmann, New York.
121 Case of Strangulated Femoral Hernia, Including Part of Bladder. L. B. Zintsmaster, Massillon.
122 Intestinal Intoxication and Thyreotoxicosis. B. L. Spitzig, Cleveland.
123 Hydronephrosis with Reports of Cases. H. O. Bratton, Columbus.
124 Pyonephrosis in Presumptive Single Kidney Operation—Recovery. C. S. Hamilton, Columbus.

Oklahoma State Medical Association Journal, Muskogee

October, VI, No. 5, pp. 185-228

125 *Surgical Treatment of Cancer of Lower Lip, with Report of 199 Cases. E. H. Beckman, Rochester, Minn.
126 Endocarditis. P. P. Nesbitt, Muskogee.
127 Diagnosis and Prognosis of Valvular Heart Lesions. R. W. Williams, Anadarko.
128 *Functional Diseases of Heart.* T. D. Renfrow, Billings.
129 Surgery of Heart. R. M. Howard, Oklahoma City.
130 Arteriosclerosis with Special Reference to Symptoms and Physical Signs. L. J. Moorman, Oklahoma City.

125. Cancer of Lower Lip.—The customary procedure employed by the Mayos in operating for cancer of the lower lip is described by Beckman. An incision is made three-fourths of an inch below the ramus of the jaw from one sternomastoid muscle to the other. This incision extends through the skin and platysma muscle. The reason for making the incision as low as this is to avoid the small branch of the facial nerve which swings down below the angle of the jaw and then returns on the face to supply the muscles about the angle of the mouth. Where it is necessary to remove only a small portion of the middle of the lip, Beckman says, a better cosmetic result is obtained by saving these branches of the facial nerves. If, however, it is necessary to remove more of the lower lip and widen the mouth by extending into the cheek, it is not necessary to save these nerves.

Through this incision the skin and platysma muscle are reflected down to the hyoid bone and up to the inferior maxilla. All of the fascia and fat, including the submaxillary salivary glands, are removed from the submental and submaxillary triangles. It is necessary to ligate both the facial artery and vein. The blood-supply to the face is so abundant through the other branches of the external carotid that no sloughing from this cause has been seen. The hypoglossal nerve and the lingual branch of the trifacial are exposed on each side and should be saved. After the removal of the glands this primary incision is closed, drainage being established through small separate incisions on each side. The platysma muscle is stitched first and then the skin with a subcutaneous suture. The wound in the neck is then carefully protected and the operation on the lip begun.

A quadrilateral section, including the full thickness of the entire lip, is removed, running down nearly to the point of the chin. The section removed should include the growth and from one-fourth to one-half inch on each side into the healthy tissues. The coronary artery should be tied on each side. An incision is then made from the lower angle of the quadrilateral parallel to the ramus of the jaw on either side as far as is necessary to obtain enough tissue to close the defect. The entire flap from which the new lower lip is to be made should be freed well from the bone. These flaps are then sutured together in the mid-line with silkworm gut sutures, the skin being approximated with horse-hair. If the skin remaining over the point of the chin is too long to be approximated to the new lip so that it produces wrinkles, it is shortened by taking out a small triangle at one or both ends of the incision as shown by the accompanying diagram.

This is the technic employed in cases in which only a small portion of the lip is removed. If one-half or more of the lower lip must be removed, the primary incision is made in precisely the same way. In addition to the incision running from the lower end of the quadrilateral piece along the ramus of the jaw, it is now necessary to make incisions parallel to the former, extending from the corners of the mouth directly into the cheek. These incisions should extend slightly downward rather than upward. When the flaps on each side are thoroughly free, they are approximated as in the former case, the only difference being that the raw surface of the lower lip must be covered with mucous membrane as just mentioned. It is now seen that the lower lip is shorter than the upper, and also shorter than the skin remaining on the chin. These two latter are shortened by removing triangular pieces from the extremity of each incision, as shown in the diagram.

This plastic work was originated by C. H. Mayo and has not been described in the literature. From Jan. 1, 1907, to Dec. 31, 1911, there were 199 patients with cancer of the lower lip observed in the Mayo Clinic. Twenty-five of these 199 cases were diagnosed from clinical findings only and consequently cannot be proved definitely to have been cancer. The remaining 174 cases have been proved to be cancer by both clinical and pathologic diagnosis. One hundred twenty-six patients had a radical operation performed as the first operation. Ninety-nine of these patients have been traced. Eighty-three have no sign of a recurrence either locally or in the glands of the neck. Sixteen have either died of their original trouble or now have a recurrence. Seven of these sixteen patients had glands involved at the time of their operation and three others had an extensive growth on the lip. Two of the 83 patients were examined just one year ago; 25, between one and two years; 17 between two and three years; and 4 over five years. In 18 of the above number glandular involvement was demonstrated by the microscope at the time of their operation and 9 of these, or 50 per cent., are among the cured cases. Twenty-five patients had a late radical operation, that is, removal of the glands of the neck following one or two local operations on the lip or following treatment by paste. Twenty of these patients have been traced. Fourteen are classified as cured and six as not cured, giving a percentage of 70 per cent. of cures in those patients having a late radical operation as compared with 83.6 per cent. of cures in cases that had radical operations as the primary treatment.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

September, XXXI, No. 121, pp. 193-288

1 Medicine and Its Practitioners during Earlier Years of History of Bath. J. Wigmore.
2 Hypernephroma or Mesothelioma of Kidney. J. Swain.
3 Nephropexy. J. L. Firth.
4 Mixed Infections. I. W. Hall.
5 Case of Cervical Rib. R. Waterhouse.
6 Three Cases of Ataxia. J. M. Fortescue-Brickdale.
7 Intermittent Swelling of Parotids. C. W. J. Brasher.
8 Ethical Aspects of Physical Research. DeL. O'Leary.
9 Hemorrhagic Diseases of Newborn, with Report of Case due to Duodenal Ulcer. J. H. Pinniger.

British Medical Journal, London

September 27, No. 2752, pp. 777-836

10 *Operative Treatment of Inoperable Cancer. C. Rowntree.
11 *Reaction of Blood-Serum as Aid to Diagnosis of Cancer. W. D. Sturrock.
12 Sarcoma of Uterus. J. H. Marsh.
13 Autoplastic Ovarian Graft and Its Clinical Value. B. Whitehouse.
14 Supposed Case of Pellagra. R. Reid and W. Calwell.
15 Affections of Heart in Childhood. F. J. Poynton and C. Coombs.
16 Surgery of Childhood. J. H. Nicoll.
17 Cardiac Efficiency from School Point of View. A. A. Mumford.
18 Choice of Methods in Dealing with Paralytic Deformities in Children. T. H. Openshaw and O. Foerster.
19 Diagnosis and Treatment of Acute Abdominal Inflammation in Children. C. B. Lockwood.
20 Necessity for Selection and for Skilled Supervision in Treatment of Spinal Deformities by Exercise. J. S. K. Smith.
21 Treatment of Acute Poliomyelitis (Infantile Paralysis). A. S. B. Bankart.

10. Treatment of Inoperable Cancer.—Rowntree is of the opinion that at present we do not do enough for our cases of advanced cancer, and is convinced that the immediate future holds out a good deal of promise as regards the palliation of this miserable condition. An important preliminary to this should, he thinks, consist in the banishment of the dreadful sense of hopelessness and finality that the present usage of the word "inoperable" creates. He favors the performance of limited operations for the alleviation of incurable cases of cancer.

11. Reaction of Blood-Serum in Cancer.—The method described by Sturrock is based on that of Moore and Wilson, but contains several modifications which he believes increases its clinical value. He examined many cases by Moore and Wilson's method, but found definite results difficult to obtain. The veins of the forearm are engorged, a suitable vein is chosen, and the overlying skin purified; the vein is then punctured with the needle of an antitoxin syringe, and the issuing blood collected in a small test-tube of about 3 c.c. capacity. The tube is rather more than half filled and the mouth closed with a plug of cotton-wool. It is then left in a vertical position for twenty-four hours, and afterward centrifugalized to obtain clear serum.

A series of dilutions of normal sulphuric acid is prepared and kept in well-stoppered bottles; the dilutions run in series as follows: fourth-normal, four and five-tenths normal, fifth-normal, etc., to seventh-normal, and are thus seven in number. They must be tested from time to time against sodium carbonate of known strength, and should be found to remain constant for a considerable time. When required for use, a small quantity of acid is, after shaking, poured into a watch-glass or, preferably, a small glass staining dish.

Two drops of a 1 per cent. alcoholic solution of dimethyl are dropped on a filter paper. A small quantity of distilled water is then drawn into a capillary pipet, a bubble of air allowed to follow, and, after this, serum drawn as far as a mark about 3 cm. up the pipet; a second bubble of air is then admitted, and, finally, the particular acid solution required is drawn up to the same mark. The pipet now contains equal quantities of serum and acid and a trace of distilled water. The contents are blown out on a porcelain slab, thoroughly mixed by aspiration, and finally blown out on the center of the dimethyl drop. If no pink appears in the center of the yellow drop, the process is carried out with stronger acid solution till the pink change first occurs. If, on the other hand, pink appears at the first attempt, weaker acids are used until the change is no longer obtained. The dilution which gives the first pink reaction is taken as the index; if, for instance, pink appears with fifth-normal acid, but not with five and five-tenths normal, the alkalinity to dimethyl of the serum is reckoned as equivalent to fifth-normal or two-tenths normal.

To prevent absorption of alkali from glass, all the glass materials used are subjected to immersion in strong hydrochloric acid, and are afterward thoroughly washed in distilled water and finally dried in an oven at 110 C. (230 F.). The average alkalinity of the cancer series examined was one hundred and ninety thousandth normal, higher than that of the non-malignant—that is, one hundred and seventy-three thousandth normal. It appears that a reading of two-tenths normal or over affords some presumption of the presence of cancer, and in Sturrock's opinion it is sufficient to justify an exploratory operation in doubtful cases.

Journal of Tropical Medicine and Hygiene, London

September 15, XVI, No. 18, pp. 273-296

22 Plague. W. G. Liston.
23 Relationship of Tarbagan (Mongolian Marmot) to Plague. Wu Lien Teh.

Lancet, London

September 27, II, No. 4700, pp. 511-976

24 *Causes of Failure of Women To Nurse Their Infants at Breast. H. C. Cameron.
25 *Syphilis: Its Dangers To Community and Question of State Control. H. C. French.
26 *Bacillus Leprae: Has It Been Cultivated? H. Fraser and W. Fletcher.
27 Pathology of Condition Known as Parasyphilis. J. McIntosh and P. Fildes.
28 Radium Rays in Treatment of Hypersecretion of Thyroid; Report of Four Cases. D. Turner.
29 *Treatment of Umbilical Hernia in Children by Subcutaneous Elastic Ligature. J. Fraser.
30 Helminthiasis in Bassa Province, Northern Nigeria. J. E. L. Johnston.
31 *[illegible] eckel's Diverticulum Simulat- [illegible] rdine.
32 [illegible] erebral Tumor from Point of [illegible] L. Paton.
33 [illegible] Cerebral Abscess. H. F. Renton.
34 Advanced Carcinoma of Cervix Uteri Containing Twins Treated by Vaginal Hysterectomy. H. B. Mylvabanam.

24. Failure of Women to Nurse Their Infants.—The truth of the statement that modern women, just because they are modern women, far removed from the primitive conditions of life, suffer from any degeneration of the mammary gland is denied by Cameron. He says that there is no proof whatever that racial development is in the direction of atrophy of the gland or of degeneration of its functions. Secondly, he points out that we should remember that the force which brings the mammary gland to free secretion is provided by the vigorous sucking of the child. When the infant is born there is but little milk in the breast, while in a few days, after a strong, healthy infant has begun to suck, milk flows in abundance. If two infants are nursed the amount of milk doubles itself; if one is taken away the amount is reduced by half. Cameron knows no way in which the secretion of milk can be stopped save by a complete removal of the child. Lastly, and most significantly of all, if for any reason only one breast is used, that breast alone secretes milk, while the other remains dry.

These commonplace observations, Cameron states, show that the main factors which determine the initial secretion of milk in the mother's breast reside in the child and not in the mother. When the child has a good appetite, sucks well and empties the breast completely the amount of milk secreted increases with each nursing. Let some accident diminish his appetite for a few days—some slight pyrexial disorder, for example, or a trifling dyspepsia—then with diminished suction less milk is secreted, and the infant involuntarily imposes on himself a period of partial starvation.

There is, however, a second provision against the danger of overfeeding and dyspepsia in breast-fed infants. The composition of milk varies within wide limits during a single nursing. The first milk drawn off is relatively dilute; the last milk is so rich in fat that it may almost be considered as cream. With feeble suction and insufficient emptying of the breast the last concentrated milk is not obtained, and the food of the sick child becomes relatively dilute. In these two ways Nature guards very efficiently against overfeeding, and as a result dyspepsia from simple overfeeding is a much less common and less severe disorder in breast-fed infants than in those babies who are fed on the bottle, the contents of which are of unvarying composition and always ready to flow freely into the infant's mouth in response to a minimum of effort on his part.

In some cases, however, Nature seems to have been, as it were, overcareful—to guard so well against the overfeeding of the feeble or sick infant as to cause some risk of inanition and drying up of the mother's breast. This is especially so, Cameron thinks, in first-born infants. No doubt the first labor is prone to be protracted and difficult, and the child as a result tends to be exhausted or even slightly asphyxiated, and is apt to lie in a drowsy condition, with little appetite and little vigor in sucking. Apart from this effect on the child, which in all but a few severe cases is quite transitory, the breast which is becoming functional for the first time is slower to secrete and requires a greater effort on the part of the child than does the breast of a multipara. At any rate, there appear to be but few cases in which the first baby suffers severely from inanition while the later children thrive from the beginning. On the other hand, when the nursing of the first child has been very easy, the second is more likely to suffer from dyspepsia as the result of overfeeding. Although no doubt women differ considerably in their response to the stimulus of the infants' sucking, it remains true that the main factor which controls the secretion of milk is provided by the sucking of the child.

Overwork and underfeeding of the mother in the later months of lactation can doubtless produce deterioration of the quality of the milk, but in the first establishment of the milk the part of the mother, provided that the nipples are well formed, is comparatively a passive one, and the breasts of a woman in the last stages of exhaustion from some debilitating disease may be full of milk for some time after labor, provided only that the child is strong and hungry.

25. **Syphilis and State Control.**—French's essential opinions in the control of prostitution and venereal diseases culled from twenty years' practical experience in many countries are as follows: Confidential medical notification of disease on prima facie evidence and medical treatment for short periods in hospital in the early actively contagious stages of disease, the steps taken being dependent on environment and the circumstances of the individual case. The effectual control of openly practiced prostitution by adequate police measures for irreclaimable prostitutes. The rigid suppression of souteneurs who act as middlemen and live on the earnings of women, and even marry with this object in view. The protection of orphan children and minors and the suppression of begging in the streets by children under 12 years of age. The suppression of loitering and solicitation in the streets by women or men acting on their behalf. The provision of "free voluntary dispensaries" where women who do not openly practice prostitution (clandestines) may be treated and reclaimed. Removal of disorderly persons from the towns, and measures to prevent the return of evicted persons, and to prevent harboring of diseased merchant seamen, who spread the worst form of disease at seaport towns. Control of persons seeking medical aid from chemists for venereal diseases, who spread their complaints broadcast and maintain syphilis in perpetuity. Circumcision of male infants and all recruits entering the army with phimosis. Punishment by fine or imprisonment for concealing disease, or for transmitting it knowingly to another. The marriage of syphilitics discouraged by law under ten years from date of contracting the disease.

26. **Bacillus Lepræ.**—Material for purposes of cultivation on various mediums has now been obtained by Fraser and Fletcher from thirty-two non-ulcerating nodular cases of leprosy, and 373 inoculations made on the various culture mediums. They have consistently failed to obtain a culture of the *Bacillus leprae*. There is no doubt in the author's minds that material swarming with bacilli has been employed on each occasion. This was clearly demonstrated by the microscopic examinations which were made in every case. From the examinations made of nodules which have been incubated on culture mediums for periods ranging from a few days to nine months, no evidence has been obtained that the bacilli had increased or lessened in number. They point out that any one who has examined smears prepared from freshly excised leper tissues must be struck with the enormous masses of acid-fast bacilli present, and they are unable to comprehend how it is possible to state in a case in which no macroscopic growth is apparent that an increase, recognizable only by the microscope, has occurred.

29. **Umbilical Hernia in Children.**—The operation is not performed by Fraser on children below the age of 6 months, and in the majority of cases, he says, it is of advantage to wait until the child is 1 year old. During the preoperation period the application of a pad or of inversion may be practiced, and if cure results without operation so much the better. The size of the opening in the abdominal wall is considered in judging the suitability of the case. A large opening is unsuitable for operation by this method, as there is later a tendency to recurrence. The rough guide which Fraser uses is the tip of the little finger—an opening which is large enough to admit this is considered unsuitable. It is essential that the sac be empty; irreducible contents of any description whatsoever must be looked on as an absolute contra-indication to the operation. As long as the opening in the parietes is suitable the size of the sac need not be taken into consideration. The method has been practiced on twenty-one patients. The procedure does not occupy more than a couple of minutes in the accomplishment, and the after-treatment is of the most simple description. The preliminary treatment consists in a thorough evacuation of the bowels and the reduction of flatulence by suitable dietary before operation. The essential material is a piece of elastic cord ⅛ inch in diameter and about 3 inches long.

The technic of the operation is as follows: The skin over the fundus of the protrusion is grasped with a pair of dissecting forceps, and skin and sac are pulled gently upward from the abdominal wall. Great care is exercised in ascertaining that the contents of the sac are completely reduced. Three small incisions are made at equal intervals around the periphery of the sac, at the point where the skin is reflected on the abdominal wall. These incisions penetrate the skin and subcutaneous tissues, but they must not injure the sac. With a blunt dissector it is now possible to undermine the tissues around the pedicle of the sac—the three radiatory incisions facilitate the performance of this. The elastic ligature is now pulled beneath the skin, following the track of separation. This is most conveniently done by means of an artery forceps, which pulls the ligature as tightly as possible around the pedicle of the sac and fastens it so with a stout piece of silk. The ends of the elastic ligature are left protruding through one of the incisions, and they are cut to a convenient length; a simple dressing is applied and kept in position by means of a band of adhesive plaster. The ligature is allowed to remain in position for six days and then removed by cutting the silk knot. The opening which it leaves quickly closes.

31. **Suppurating Endothelioma.**—In Carwardine's case free fluid was present in the peritoneum, serous generally, but puriform in the right loin. A gangrenous broken-down mass was found, originating in a Meckel's diverticulum, and necessitating the resection of 15 inches of the small intestine. The appendix was normal. The patient remains well.

Annales de Médecine et Chirurgie Infantiles, Paris

September 15, XVII, No. 18, pp. 597-632

35 Relations between Appendicitis and Diverticulitis. M. Guibé.

Archives des Maladies de l'App. Digestif, Paris

August, VII, No. 8, pp. 421-480

36 Causes of Defective Digestion of Cooked Starch. (Etude coprologique sur les causes du déficit d'utilisation de l'amidon cuit.) R. Goiffon.
37 *Tests for Occult Blood in Gastro-Intestinal Tract. G. L. Hallez. Commenced in No. 7.

37. **Testing for Occult Gastro-Intestinal Hemorrhage.**—Hallez fed animals with measured amounts of blood and then applied to the stools and stomach content the various tests in vogue to detect invisible blood. The conditions thus closely approximated those with natural hemorrhage in the stomach or bowel, and the findings confirmed anew the remarkable delicacy of the current tests, especially the Weber, the Meyer and the Adler technics. No meat or raw vegetables should be eaten for three days before the test is applied, and no drugs taken.

Archives Générales de Médecine, Paris

August, XCII, No. 8, pp. 677-768

38 Hemorrhage in Operations on the Throat. Mermod.
39 Physiotherapy in Asthma. E. Perpère.

Archives de Médecine des Enfants, Paris

September, XVI, No. 9, pp. 641-720

40 *Initial Localization of Pulmonary Tuberculosis in Children and Involvement of the Apex. C. Leroux.
41 Pediatrics in Connection with General Welfare Work for Children. E. Deutsch.

40. **Initial Localization of Pulmonary Tuberculosis in Children.**—Leroux gives a number of skiagrams of children to sustain his assumption that in infants and quite young children the initial localization of tuberculous infection is toward the base or the middle part of the lung in the majority of cases. The focus even with involvement of adjoining lymph-nodes and later of the corresponding lymph-nodes on the other side, may give no clinical sign of its presence, but it shows up on roentgenoscopy. Before the age of 2, the tuberculous process generally proves fatal, but after this age skiagrams taken at intervals during months and years show that the pulmonary affection usually passes through three phases: first there is the primary focus, then a stage of tuberculous processes in the tracheobronchial lymph-nodes, and then the apex becomes involved or there is secondary reinoculation of the apex. In older children, as in adults, the primary process seems to localize preferably at the apex; the lymph-nodes are affected only secondarily or later, but they become involved more regularly than is the case in adults. The skiagrams given show the low focus, then the phase of involvement of the tracheobronchial lymph-nodes, and finally the involvement of the apex. This is the usual course in young children. In children of 10 or more the apex is first involved and later the tracheobronchial lymph-nodes and the apical process heals in the favorable cases, and later the lymph-nodes.

Journal de Chirurgie, Paris

September, XI, No. 3, pp. 269-408

42 Operative Treatment of Fractures. (Traitement sanglant des fractures de jambe récentes et anciennes.) C. Dujarier. (Le traitement des fractures graves suivant la technique de Lambotte.) P. Fredet.

Lyon Médical, Lyons

August 31, XLV, No. 35, pp. 329-372

43 The Jugular Pulse. (Le pouls veineux jugulaire physiologique et son interprétation.) M. Petzetakis.
44 Institutional Care in Obstetric Cases. (Natalité et maternités.) J. P. Morat.

Revue Mens. de Gynéc., d'Obstét. et de Pédiat., Paris

August, VIII, No. 8, pp. 465-508

45 *Pyelonephritis in Pregnancy. O. Pasteau.
46 Prophylaxis of Uterine Cancer. L. M. Bossi.
47 Spontaneous Rupture of Ovarian Cyst During General Anesthesia; Two Cases. M. Patel.

45. **Pyelonephritis of Pregnancy.**—Pasteau insists on the great difference between pyelonephritis developing in the course of pregnancy or developing first after delivery. The former should be treated by simple measures, therapeutic distention of the bladder to its physiologic capacity, the patient reclining with only the head raised above the plane of the bed, with hexamethylenamin to sterilize the urine. This reduces the congestion in the small pelvis, stimulates the kidney secretion and modifies the urine, and thus combats the causes of the retention and helps in the evacuation of the kidneys. These measures alone generally suffice, and a complete transformation and cure usually follow delivery. The indications are quite different with pyelonephritis coming on after delivery. This requires systematic catheterization of the ureter, evacuating and rinsing out the kidney pelvis. The trouble in this case must be treated with the greatest care and perseverance or the kidneys are liable to become seriously and permanently impaired. Only when there is great distention of the kidney, with fever and a bad general condition, is nephrostomy indicated, but when this is needed, it often brings about a complete cure.

Semaine Médicale, Paris

September 17, XXXIII, No. 38, pp. 445-456

48 *Diagnosis of Tuberculous Salpingitis. R. de Bovis.

September 24, No. 39, pp. 457-468

49 *The Renal Element in Glycosuria. R. Lépine.

48. **Diagnosis of Tuberculous Salpingitis.**—De Bovis remarks that tuberculous processes in the uterine adnexa are more frequent than generally recognized; Labhardt found them in 22 per cent. of all his ovary and tube patients. In differentiation, bacteriologic examination of the uterine secretions, the infantile status of the genital organs, menstrual disturbances, persisting fever and recurring mild diarrhea or symptoms of mild pelvic peritonitis—all these speak for a tuberculous process in the adnexa, while tuberculin tests do not reveal whether the tuberculous lesions are here or in the lungs or elsewhere. In virgins or in women who have never had puerperal complications or have never been exposed to gonorrhea, salpingitis is almost invariably of tuberculous origin. Lesions of this nature are liable to fluctuate in size as the tube becomes obstructed or becomes the seat of congestion from various causes. These transient congestions are probably responsible for the recurring mild peritonitis symptoms. Castano recently based his diagnosis on this sign, having witnessed that the tubes varied from the size of an egg to that of an orange at different times and became very painful, and tubercle bacilli were found in the discharge from the uterus. Variable palpation findings of this kind are more regular and constant with tuberculous salpingitis than with any other conditions, and this variability affords strong presumptive evidence of the tuberculous nature of the trouble in the adnexa.

49. **The Renal Element in Glycosuria.**—Lépine called attention to the subject some eighteen years ago, and here analyzes the various communications on renal diabetes and phloridzin glycosuria that have been published since that date. He suggests in regard to phloridzin glycosuria that the molecules of the phloridzin and its derivatives can pass through the kidney only by an actual effraction, that is, breaking their passage through by force. Sugar molecules, following in their steps, can slip through the breaches thus produced in the kidney filter. This explains how we get the clinical picture of glycosuria with only the normal proportion of sugar in the blood or even less than this.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXVIII, No. 1, pp. 1-153. Last indexed Sept. 13, p. 903

50 *Treatment of Hemoptysis with Intravenous Hypertonic Salt Solutions. H. Müller.
51 Modification of Pirquet Tuberculin Reaction under Influence of Kumyss. W. I. Glintschikoff.
52 *Tuberculosis in Village in Thuringia. J. Fürbringer.
53 *Therapeutic Pneumothorax in Treatment of Purulent Tuberculous Exudate in the Pleura. A. Rösler.
54 Local Conditions Predisposing to Pulmonary Tuberculosis. A. Bacmeister.

50. **Treatment of Hemoptysis with Saline Infusion.**—Müller calls attention to the often remarkable effect of intravenous saline infusion in arresting hemorrhage, and commends it in treatment of hemoptysis. Salt promotes coagulation, and it is an old traditional remedy for hemorrhage; von den Velden by systematic experiment and clinical research has confirmed its efficacy in this line and explained in part the mechanism of its action. He attributes it to the marked exchange of fluids between the blood and the tissues under the modification of osmotic conditions which follows ingestion or injection of salt. This evidently mobilizes substances which promote coagulation, and the effect is naturally more rapid and more intense when the salt solution is injected directly into the blood stream. The blood becomes more fluid and at once it coagulates more readily, the maximum effect being reached in fifteen or twenty minutes and then subsiding in the course of an hour. He reported in 1909 seven cases of hemoptysis in which the tendency to hemorrhage was thus arrested at once. Müller has found only four articles on the subject published since, and none of a comprehensive character like the communication he here presents. In it he reviews his experiences with the measure in fifty cases during the last eighteen months, giving the details of each case, classified according to the extent of the hemorrhage and the stage of the pulmonary tuberculosis. He does not hesitate to affirm that infusion of a hypertonic salt solution is more reliable than any other measure to date. The best technic seems to be by intravenous injection of 5 c.c. of a 10 or 15 per cent. solution of salt. The injections are entirely harmless, he states, and cause no pain. All tendency to hemoptysis is arrested almost without fail in case of slight or moderate bleeding (up to 100 c.c.), in the predominantly fibrous form of pulmonary tuberculosis. With more than 100 c.c. of blood, the injection often answers the desired purpose, and hence should always be tried, although it sometimes fails. The fibrous form of tuberculosis is more amenable to the measure than the ulcerative. In only five of the total fifty cases was no benefit observed; in twenty-one cases the tendency to hemorrhage was permanently arrested; in thirty-five cases the hemorrhage was arrested at once but it returned a few days later in fourteen in this group. In four other cases the existing hemorrhage was not modified, but the hemorrhagic tendency thereafter seemed to have been arrested. The injection should be given during the hemorrhage and after its arrest he recommends a second and possibly a third injection during the day to ward off recurrence. Müller comments on the depressing influence of hemoptysis on both body and mind, and the advantages of arresting it at once by this simple and harmless measure which can be applied by any practitioner. If the tendency to hemorrhage fails to yield to the saline infusion, he advises a therapeutic pneumothorax or thoracoplastic operation to squeeze the lung into smaller compass and thus mechanically conquer the tendency to hemorrhage.

52. **Medical Inspection of Entire Community.**—The village in question has a population of 470 and the authorities sent Fürbringer to examine into the causes of the exceptionally high death-rate from tuberculosis. His research seems to have been conducted along model lines and he emphasizes the important lessons learned from this intensive study of public-health conditions in a small poverty-stricken community. He regards the lack of training in domestic science, in vegetable gardening and in raising rabbits for meat, as the predominant factors in the general thriftlessness and consequent liquor drinking and morbidity. The income of the families is rarely over $175 a year, and never much higher, and yet the average expenditure of each family for liquor was $51 in the last year for which the figures are obtainable.

53. **Therapeutic Pneumothorax in Treatment of Tuberculous Empyema in the Pleura.**—Rösler has only two cases to report, but the results were excellent in these very serious and advanced cases. He consequently commends evacuation of the cavity and injection of nitrogen in its place as an important measure in all such suppurative exudates over a tuberculous lung. The distressing symptoms were relieved at once and cough and expectoration subsided entirely in one case. In the other, the tuberculous laryngitis and enteritis continued their course but life was prolonged and rendered bearable. The greater or less tendency to cirrhosis displayed by the lung tissue is evidently the deciding factor as to the outcome in tuberculous pulmonary affections.

Berliner klinische Wochenschrift

September 15, L, No. 37, pp. 1693-1740

55 Cultivation of Micro-Organism of Epidemic Poliomyelitis. S. Flexner and H. Noguchi.
56 Elimination of Hexamethylenamin Through the Mucous and Serous Membranes. (Zur Sekretion des Urotropins durch Schleimhäute und seröse Häute.) A. Leibecke.
57 Vaccine Therapy of Gonorrhea. J. Gerschun and J. Finkelstein.
58 Percussion of Spine in Diagnosis of Apical Lesions. (Diagnose der Lungenspitzenerkrankungen und die Perkussion der Wirbelsäule.) Rüde.
59 *Orthodontia. J. Grünberg.
60 Advantages of Duodenal Feeding with Cirrhosis of the Liver. M. Einhorn.
61 *The Reflexes. (Ueber Sehnen- resp. Muskelreflexe und die Merkmale ihrer Schwächung und Steigerung.) E. Trömner.
62 Study of Experimental Mercuric-Chlorid Nephritis. (Die Nierenfunktion bei der durch Sublimat erzeugten Nierenentzündung.) M. Ghiron.
63 The Wassermann Reaction in Malaria. (Ueber den Ausfall der Müller-Brendel'schen Modifikation der Wassermann'schen Reaktion bei Malaria.) H. Zschucke.

59. **Correction of Deformity of the Jaws.**—Grünberg pleads for the cooperation of dentists and orthopedists to correct protruding or receding jaws in order to make the teeth work better and thus improve the general health while improving the appearance. He merely seeks to have the principles advocated by E. H. Angle better understood and applied more generally. The article is accompanied by twenty illustrations showing conditions "before and after," and illustrating anew the advantages of orthodontia.

61. **The Reflexes.**—Trömner gives an illustrated description of his methods for eliciting tendon and muscle reflexes, and discusses the signs of attenuation or exaggeration of reflex action. He insists that the whole science of reflex action is much simpler than generally recognized, and that reflex irritability is a physiologic property of every voluntary muscle. Many more reflexes can be elicited in the healthy than has hitherto been deemed possible. Different persons vary in this respect; in some twenty different reflexes can be elicited; in others only four. He has never encountered but one person in whom it was impossible to elicit any reflex action except a weak knee-jerk. He states that it is possible to elicit some of the ordinary reflexes by several methods instead of the classic one usually followed; the Achilles reflex, for instance, can be induced, even more promptly than with the usual technic, by striking gently on the sole of the shoe or on the ball of the bare foot covered with a pleximeter.

He regards joint and periosteum reflexes as essentially muscle-reflex action. This is shown most convincingly in what he calls percussion muscle-excitability (PME); for example, when the knee is raised a little on a cushion, the pleximeter laid across the quadriceps above and struck with the hammer, a reflex contraction follows. It is weaker than that when the tendon is struck because the concussion is spread across the muscle and not lengthwise, but the contraction occurs *en masse* because it is a true reflex contraction. It does not occur therefore in tabes or polyneuritis, while it occurs with greater intensity when the reflexes in general are increased.

At the same time, there is a change in the sound of the stroke on the muscle; in both the tendon and the mass of a reflex-dead muscle, the sound is duller and more doughy than in normal or reflex-exaggerated muscles. When the reflex is lost on one side only, the mere sound will tell whether the normal or the reflex-dead muscle is tapped. It is immaterial whether the concussion of the muscle is produced from above or below, so that nearly all the reflexes can be elicited in three or four different ways. He gives illustrations of the various types described, and states that in health all the larger muscles will respond with reflex action, and the absence of reflex action in several of these muscles should suggest possible organic disease. With exaggerated reflex excitability, there may be crossed reflexes, especially with the pectoral and quadriceps muscles. With the crossed type, the symmetric muscles respond only to stimuli from the sound side. Another important sign is what he calls contrareflex action in case of exaggerated reflexes—the reflex action occurring on tapping the opposite side of the limb.

These signs, he says, afford objective data where hitherto we have been restricted to subjective estimation of abnormally increased or decreased reflex action. The pathognomonic signs are: distinct and extensive percussion muscle-excitability; rare crossed reflexes, as, for instance, of the pectoralis; reflex excitability of otherwise non-excitable muscles, such as the flexors of the toes; and certain clonic phenomena —these all point to organic causes. His "calf phenomenon" has never failed to be more sensitive even than the Babinski, while it has equal diagnostic significance. He gives an illustration of the method of eliciting it, stroking the calf from the back of the knee downward. Independently of each other, Redlich, Gordon and Trömner found that this stroking the back of the calf downward, with some pressure, elicits dorsal flexion of the foot in case of organic increase in the reflexes. In health there is little if any reflex movement. Trömner's experience with this calf phenomenon during the two years since it attracted his attention has confirmed in every respect his first assertions in regard to it (summarized in The Journal, Oct. 21, 1911, p. 1411). It proved extremely useful for the differential diagnosis in a number of cases in which the Oppenheim sign was absent and the Babinski faint and doubtful. He has found that the Babinski can sometimes be made more prominent by pressing with the thumb on the posterior margin of the tibia.

Deutsche medizinische Wochenschrift, Berlin

September 18, XXXIX, No. 38, pp. 1817-1864

64 *Arteriosclerosis. C. Hirsch and O. Loeb.
65 *Paroxysmal Tachycardia. R. Kaufmann and H. Popper.
66 *Bacteriology of Surgical Tuberculosis. (Zur Aetiologie der Knochen- und Gelenktuberkulose.) B. Möllers.
67 Compression in Treatment of Acute Pleural Empyema. B. Hahn.
68 *Sterilization of Small Amounts of Drinking Water. (Ein neues Verfahren der Chlorkalksterilisation kleiner Trinkwassermengen.) H. Langer.
69 Trocar-Endoscopy. (Ueber Endoskopie geschlossener Höhlen.) S. Nordentöft.

64. **Arteriosclerosis.**—Hirsch discusses the various theories as to the causes of hardening of the arteries, inclining to the view that both mechanical and chemical factors are involved. He thinks it probable also that the elasticity of the artery walls may be reduced for a time before it is possible to detect histologic change in the tissues.

Loeb has succeeded in inducing experimental lesions in the arteries of dogs, the first time, he thinks, this has been realized in animals other than rabbits. His experiments have demonstrated that lactic acid is concerned in the production of arteriosclerosis. This is significant because during severe muscular work the proportion of lactic acid in the blood may increase from the normal 15 or 30 mgm. to 150 mgm. in 100 gm. of blood. He remarks that this may throw light on the predisposition to disease of persons doing unaccustomed heavy work. He urges special study as to changes in the production of lactic acid in connection with arteriosclerosis. His research has further shown that overstretching of the wall of the artery renders it less resistant to the action of toxins; the resisting power is least at the points where the metabolism differs most from repose metabolism, either from active exertion of the contractile elements or overstretching. He suggests that the difference in the food between that of rabbits and of dogs may explain the greater susceptibility of the former to arteriosclerosis; experiments in this line with dogs are now under way, giving them no meat or other albumin. The results already observed suggest that it may be possible to limit the production of lactic acid in human beings by avoidance of overexertion and by dietetic restrictions, on the one hand, and on the other hand, it may prove possible to annul its toxic action by administering some ammonia-producing substance or the like.

65. **Paroxysmal Tachycardia.**—Kaufman and Popper reported some time ago an interesting case of disturbances from constant abnormal irritability of the supraventricular segment of the heart in a man of 27. Varying conditions of heart-block kept modifying the clinical picture, attacks of paroxysmal tachycardia alternating with irregular heart action and pulse. With the newer methods of examination it was found that the paroxysmal attacks proceeded from Tawara's node, while the arhythmia could be traced to changes in the starting-point of the contractions of the heart, and to varying degrees of sino-auricular block. Under large doses of physostigmin, combined with strophanthus, the attacks of tachycardia became attenuated and ceased, while the subjective and objective symptoms became improved and the heart action passed into another form of arhythmia—the so-called perpetual arhythmia from auricular fibrillation. This form of arhythmia was then kept controlled by atropin; this transformed the arhythmia into a permanently regular pulse of normal frequency. The case confirms anew the efficacy of physostigmin in paroxysmal tachycardia of atrioventricular origin, and it throws light on the close connection between true perpetual arhythmia and certain other forms of arhythmia which are the work of foci of irritability located elsewhere. The case is further an interesting example of the practical therapeutic importance of the study of arhythmias with the sphygmograph and electrocardiogram.

66. **Surgical Tuberculosis.**—Möllers states that including the twelve cases here reported (including three children between 5 and 16) there are now 163 cases of bone and joint tuberculosis on record with careful bacteriologic examination, with the finding of bovine tubercle bacilli in only four cases. That is to say, that in only 2.45 per cent. of 163 cases reported by fifteen different writers were bacilli of the bovine type discovered. This is in marked contrast to Fraser's recent report of 72.72 per cent. of the bovine type in children under 5 and 45 per cent. in older children, in a total of seventy operative cases, all but three in children under 12.

68. **Sterilization of Drinking-Water on Small Scale.**—Langer states that the taste of the water is not impaired by the method he describes and has found extremely effectual in sterilizing even highly contaminated drinking-water. He uses chlorinated lime *(Chlorkalk)* in the proportion of 0.5 gm. to the liter, mixed with an equal amount of common salt to prevent clumping. After ten minutes the taste of the chemicals is removed by neutralizing with sodium percarbonate. The resulting effervescence lasts for about five minutes during which the lime is transformed into an insoluble compound which can then be filtered out. Thus in less than half an hour the badly contaminated water is made palatable and safe to drink. The slight salty taste left he does not regard as disagreeable.

Medizinische Klinik, Berlin

September 14, IX, No. 37, pp. 1485-1524

70 Emotional Disturbances in Mental Disease. (Affektsstörungen bei Psychopathen.) O. Pförringer.
71 *Pyelitis in Young Children. L. Langstein.
72 Transplanting the Fibula to Substitute Shaft of the Tibia. M. Brandes.
73 *Nocturnal Enuresis in Adults. F. Trembur.
74 Recurrence of Scarlet Fever; Three Cases. Lämmerhirt.
75 Dietetic Treatment of Gastric Ulcer. L. Bamberger.
76 Reciprocal Relations between the Thymus, Thyroid and Lymphatic System. F. Poensgen.

71. **Pyelitis in Children.**—Langstein states that in most cases the pyelitis has been preceded by an acute infectious disease, influenza most often. Whooping-cough, scarlet fever and megacolon are particularly liable to entail pyelocystitis.

He says that the clinical pictures with pyelitis differ more widely in individual cases than with any other disease in the pathology of the child. The toxic form is the most severe in its manifestations; he encountered a number of cases of this kind among breast-fed infants during the heated term. The temperature ran up to 42 C., the weight dropped, and unconsciousness and vomiting were accompanied in some cases with diarrhea. The children had been previously healthy, and at first heat-stroke was assumed, but the urine was found to consist almost entirely of pus. Some of the children recovered. In other cases the symptoms suggested meningitis or pneumonia. The pyelitis was accompanied by jaundice in some cases. The urine was entirely limpid at times; he explains this as the result of obstruction of one ureter so that only the urine from the sound kidney reached the bladder. In some cases the urine was hemorrhagic at first and he thinks that this hemorrhagic early phase has probably in some cases led to mistakes in diagnosis.

Langstein emphasizes the importance of lack of water and lack of nourishment as a factor in the clinical picture of pyelitis. He frequently witnessed a complete transformation follow suddenly on copious intake of water, even when the uremic symptoms were pronounced, and he urges the necessity for watching over the water-supply of infants in such cases. With differentiation in time and proper treatment, 90 per cent. of the children recover. Even with persisting pyuria for a year or more, the general condition can keep fair and the child may thrive comparatively on proper nourishment. On the other hand, years later, contracted kidney may develop as in a case described in which pyelitis in infancy was followed by kidney changes and fatal uremia at 8. This was the only case in his experience in which these conditions followed the pyelitis, but Heubner has encountered a number of such cases. To supply water and nourishing food in adequate amounts may require the use of the stomach tube as the children generally have no appetite. He has found phenyl salicylate (0.6 to 1 gm. daily) more effectual than hexamethylenamin. He suggests that something of the kind should be used systematically in the prevention of pyelitis in the course of scarlet fever or influenza. His experiences with vaccine therapy were not encouraging.

73. **Enuresis in Adults.**—Trembur found by roentgenoscopy and cystoscopy in thirteen cases of nocturnal enuresis in adults that the development of the lower portion of the spinal cord was defective, and that there were signs of malformation or other anomalies. He thinks that there is no doubt that enuresis persisting from childhood is in most cases a manifestation of such myelodysplasia.

Münchener medizinische Wochenschrift

September 16, LX, No. 37, pp. 2033-2096

77 Luetin Skin Test in Progressive Paralysis. L. Benedek.
78 Experimental Syphilis of the Nervous System. A. Jakob and W. Weygandt.
79 Biology of the Syphilis Spirochete. II. (Entwicklungszyklus der Spirochaete pallida bei der Untersuchung im Dunkelfeld.) Meirowsky.
80 Serodiagnosis in Psychiatry. W. Mayer.
81 Non-Dialysable Constituents of Urine. (Die adialysabeln Harnbestandteile.) H. Pribram.
82 Roentgenoscopy of the Relations between the Nervous System and the Motor Functioning of the Stomach. F. Eisler and R. Lenk.
83 Tardy Traumatic Perforation of Meckel Diverticulum. Hübschmann.
84 Small Vesicovaginal Fistula Obliterated through the Bladder. J. Baer.
85 Efficacy of Hypnosis in Treatment of Rebellious Seasickness; Three Cases. J. Hoffmann.

Petersburger medizinische Zeitschrift, St. Petersburg

September 14, XXXVIII, No. 17, pp. 203-214

86 Geographical and Age Distribution of Venereal Diseases; Local Conditions. A. Spindler (Reval, Russia).
87 The Eyes and Headache. (Beziehungen des Auges zum Kopfschmerz.) R. v. Mende.

Wiener klinische Wochenschrift, Vienna

September 18, XXVI, No. 38, pp. 1485-1520

88 *Early Diagnosis of Gastric Cancer. (Frühdiagnose des Magenkarzinoms.) F. Leitner.
89 Spirochetes in Progressive Paralysis. H. Geber, L. Benedek and K. Tatar.
90 Biologic Test for Thymus Tissue. (Erfahrungen mit dem Abderhaldenschen Dialysierverfahren—Abbau von Thymusgewebe durch normales Serum.) H. Deutsch.
91 Filter for Radium Rays. R. Bassenge.
92 *Radium in Dermatology. G. Riehl and M. Schramek. Commenced in No. 37.
93 *Geographical Distribution of Cancer. S. Rosenfeld. Commenced in No. 37.

88. **Early Diagnosis of Gastric Cancer.**—Leitner comes to discouraging conclusions as to the possibility of diagnosing incipient cancer in the stomach. The Röhmer-Grafe, Salomon, Oppenheimer and other tests proved in his research to have inherent sources of error which render their findings unreliable.

92. **Radium in Therapeutics.**—Riehl and Schramek conclude here their extensive account of the application of radium at the university dermatology clinic at Vienna. Of the 246 patients, 104 are still under treatment with the radium, sixty-five have been entirely cured (including eleven of the twenty-three cancer cases in which the course has been completed; nine were materially improved, and the condition became aggravated in three). Each one of the nineteen skin diseases represented has some cured cases to its credit, a total of sixty-five cured and seventy-three improved. The only cases in which the radium seemed to do harm were in the three cancer cases mentioned above (the neoplasms were in the cheek) and one case of lymphosarcoma.

93. **Geographical Distribution of Cancer.**—Among the points emphasized by Rosenfeld in his long study of this subject is that the "cancer islands"—the communities where cancer is especially prevalent in a generally cancer-scarce country—should be investigated with special pains, as also the cancer-scarce country around, and then the data thus recorded should be compared point by point. He says of the so-called "cancer houses" that they are generally old buildings with cheaper rents, and the sick and incapacitated naturally gravitate there from their increasing poverty. He thinks that the alleged rarity of cancer in the tropics is more a matter of defective vital statistics than an actual fact. He states that the cancer mortality in Japan (Kioto) ranges from 83 to 95 per hundred thousand inhabitants; at Moscow from 56 to 103; at St. Petersburg from 78 to 98; in southern Italy from 6 to 70; in northern Italy from 51 to 68; in the Netherlands from 75 to 105, while adjoining provinces in Germany have only from 33.5 to 35. It is a curious coincidence, brought out by his figures, that the mortality from cancer is unusually high in the district of Joachimsthal, the source of the radium supply. Another interesting fact noted is that in a country in which cancer is generally prevalent, no districts are found free from cancer—no "cancer-free islands"—while there are numerous "cancer islands" in regions generally free from it. These facts seem especially significant.

Zentralblatt für Chirurgie, Leipsic

September 20, XL, No. 38, pp. 1481-1512

94 Technic for Suturing Perforated Gastric and Duodenal Ulcer. Seidel.

Zentralblatt für Gynäkologie, Leipsic

September 20, XXXVII, No. 38, pp. 1381-1428

95 *Intravenous Injection of Distilled Water in Treatment of Puerperal Sepsis. W. J. Ilkewitsch.

95. **Infusion of Distilled Water in Puerperal Fever.**—Ilkewitsch applied in a number of cases the method of intravenous injection of 1 per thousand silver nitrate solution, introduced by Hume of Baltimore. The results were extremely satisfactory in eighty-three of 138 cases of puerperal fever, but later experience with varying concentrations of the solution convinced him that the distilled water alone, without any drug, answers the purpose equally well. He found in experiments on rabbits that intravenous injection up to 8 or 8.3 c.c. per kilo of body-weight was borne without harm. He has applied this measure in 142 cases of puerperal fever in the last eighteen months, and reports that forty-two patients were cured out of sixty-two with pyemia and septicemia. The communication issues from the maternity at Moscow. It was found that even in the severest cases of septicemia with only 1,500,000 reds, improvement followed the infusion of distilled water.

When the blood-corpuscles increase in number, the outcome is generally favorable but when the number of reds is constantly dropping, uninfluenced by the infusion, the outlook is grave and operative measures are necessary if there is a local process that can be attacked. When the heart, lungs or kidneys are seriously involved, the hemoglobin reduced to 50 per cent. or less, especially in older women, it may be impossible to ward off the fatal outcome by the infusion or any means in our power.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 14, XXXIV, No. 110, pp. 1143-1158

96 Serotherapy of Tuberculosis. (Emazie granulose e sieroterapia antitubercolare.) A. Farini and A. Alliney.

September 16, No. 111, pp. 1159-1166

97 Operative Treatment of Hypertrophied Thymus. C. Viscontini.

September 8, No. 112, pp. 1167-1174

98 Epidemic of Small-Pox. (Intorno ad un'epidemia di vaiuolo ed ai provvedimenti adottati per arrestarla.) A. Romano.

Riforma Medica, Naples

September 14, XXIX, No. 37, pp. 1009-1036

99 The Leukocytes and Bone Marrow in Carbon Dioxid Poisoning. (I leucociti del sangue circolante e il midollo osseo nell'avvelenamento da anidride carbonica.) M. Ciovini.
100 Familial Epileptic Myoclonia. F. Fazio. Commenced in No. 36.

Semana Medica, Buenos Aires

August 21, XX, No. 34, pp. 401-456

101 Post-Traumatic Cerebrospinal Meningitis in Adult. A. H. Roffo.
102 Hemiplegia Complicating Influenza or Typhoid; Three Cases. M. del Sel.
103 The Wassermann Test. (Consideraciones sobre la reaccion de Wassermann.) J. Bacigalupo.
104 *Exaggerated Fear of Anaphylaxis in Serotherapy. A. Guaita.

104. **Fear of Anaphylaxis in Diphtheria.**—Guaita relates a number of instances in which the parents refused to permit the use of antitoxin in diphtheria for fear of anaphylaxis as the child had been injected with antitoxin on some previous occasion. He states that in all his experience and in that of Penna at the contagious disease hospital, Cabrera's at the diphtheria pavillion in the children's hospital, and of others he cites, no instance of anaphylaxis has been encountered although some of the patients had received several injections of antitoxin. He declares that this dread of anaphylaxis is irrational and extremely dangerous. Even at the worst, anaphylaxis is comparatively harmless while the diphtheria is a dangerous enemy. In conclusion, he relates a few examples of fulminating diphtheria, calling on every one to cherish a wholesome dread of this treacherous disease and abandon their fear of the anaphylaxis scarecrow.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 23, II, No. 8, pp. 531-608

105 *Lithiasis in the East Indies. (Steen-snede in Indie.) J. A. Koch.
106 *Chronic Diarrheas. O. J. Wijnhausen.
107 *Radium in Ophthalmology. (Eenige gevallen van oogziekte behandeld met mesothorium-bestraling.) N. J. Cuperus.
108 Surgical Experiences during the Balkan War. F. Hijmans.

August 30, No. 9, pp. 609-728

109 *Development of Physiology in the Netherlands. (Aperçu du développement de la physiologie en Hollande.) G. van Rijnberk.
110 The Formation of Creatin in the Voluntary Muscles in Vertebrate Animals during Tonus. C. A. Pekelharing.
111 The Sacral-Dorsal-Median Column in Tabes and Its Structure, (De postero-mediale sacraal bundel bij tabes, en de daaraan te ontleenen bewijsvoering, dat die bundel geen endogene ruggemergvezels bevat, maar uint neerdalende dorsale wortelvezels is opgebouwd.) C. Winkler.
112 Multiple Resonance. H. Zwaardemaker.
113 The Development of the Electrocardiogram. I. K. A. Wertheim-Salomonson.
114 Trophic Disturbances. J. W. Langelaan.
115 *Marshall's Method for Estimation of Urea in Urine. L. J Geselschap.
116 Phonetics as Studied by Shapes Assumed by Powders. (Over het gebruik van de stoffiguren van Kundt bij de studie van het vocaal-vraagstuk.) C. E. Benjamins.
117 The Slow Contraction and the Tonic Innervation of Muscle after Poisoning with Veratrin. (De langzame spierverkorting na vergiftiging met veratrine in verband met de tonische innervatie.) S. de Boer.
118 The Movements of the Lower Jaw in the Pronunciation of Vowels. (De beweging der onderkaak bij het uitspreken der klinkers.) T. E. ter Kulle.
119 Experiments with Intestinal Fistula in the Dog. (Eenige proeven met omega-darmfistels, volgens Lombroso bij honden.) H. T. Deelman.
120 A New Cardiogram. K. F. L. Kaiser.
121 The Caudal Heart of the Eel. (Het mechanogram en het electrogram van het caudale aalhart.) H. van Trigt.
122 Influence of Cholic Acid on Pancreas Lipase. (Over den invloed van cholzuur op lipase-werking.) B. C. P. Jansen.
123 Factors Influencing the Contraction of the Pyloric Sphincter Muscle. C. H. Delpart.

105. **Lithiasis in the East Indies.**—Koch states that bladder-stones, kidney-stones and gall-stones are five times as prevalent in the East Indies as in his own country, the Netherlands. The average specific gravity of the urine in Java is 1.023, to 1.016 in the Netherlands. The temperature averages so high that considerable perspiration is almost continuous, and this naturally causes the urine to be abnormally concentrated. In addition to this general factor in lithiasis, the production of concrements seems to be exceptionally high in certain localities, suggesting that the drinking-water must be incriminated. Still another factor in the production of concrements in the urine is the squatting position in urination which prevents complete evacuation of the bladder; Mohammedan males squat to urinate. Koch endorses the advantages of median over lateral lithotomy, especially when the concrements are small or lodged in some rear recess or there is vesical catarrh or the patients are elderly.

106. **Chronic Diarrheas.**—Wijnhausen lays great stress on the importance of macroscopic and microscopic examination of the stools. In chronic diarrhea and catarrhal affections of the bowels, examination of the mucus, food-particles and unchanged bilirubin in the stools will show whether we have to deal with disease in the small or large intestine. He denounces the administration of a laxative, as this increases the serous effusion, thereby furnishing a more favorable culture medium for the growth of the pathogenic bacteria and aggravating the inflammatory process. He insists that both in theory and in practice the so-called intestinal antiseptics are of no value; the bacteria in the intestines will continue to proliferate even after administration of calomel. He advocates a milk diet or diet of dishes made with milk.

In certain cases the diarrhea is the result of disturbances in stomach functioning. It is a well-known fact that persons suffering from achylia gastrica may not display any symptoms on the part of the stomach, but the discovery of connective-tissue fibers in the stools, revealing the lack of normal gastric digestion, points to the defective functioning of the stomach which throws greater work on the intestines and pancreas. Besides this, with gastric achylia the undigested meat-particles from the food form a favorable soil for the growth of bacteria and thereby lead to diarrhea. Gastric atony and stenosis of the pylorus can also cause disturbances resulting in diarrhea. He shows how still other causes may be involved in the production of chronic diarrheas, and how careful study of the stools will disclose the true cause of the trouble and point the way to effectual treatment.

107. **Radium in Ophthalmology.**—Cuperus reports very favorable results from exposures of the eye to radium in treatment of chronic conjunctivitis, iritis and keratitis.

109. **Contributions of the Netherlands to the Progress of Physiology.**—The ninth international congress on physiology was held last month at Groningen in the Netherlands, and the *Tijdschrift* published this special number in honor of the occasion, nearly all the fifteen articles being on physiologic subjects. The *Tijdschrift* also presented each member of the congress with a souvenir-medal bearing a portrait of Donders, and the opening article in this issue is a historical sketch, with portraits of the twelve Dutch scientists who have contributed materially to the progress of physiology. The name of Donders is connected particularly with the discovery of accommodation, refraction and color vision, but he also discovered the chemistry and mechanism of the respiration. Swammerdam, Sylvius, R. de Graaf, Moleschott and Boerhaave are the other most familiar names on the list. Illustrations reproduced from the works of de Graaf, 1641-1673, show dogs with experimental fistulas into the pancreas, salivary glands, etc., the pictures looking as if they might have been taken from a recent work by Pawlow.

115. Marshall's Method for Estimation of Urea in the Urine.—Geselschap has been making comparative tests of different methods in vogue for this purpose, especially the technic recently published by E. K. Marshall (described in The Journal, April 26, 1913, p. 1327) Geselschap found this method extremely reliable while he lauds the simplicity of the technic and the case and promptness of the findings.

Hospitalstidende, Copenhagen

September 17, LVI, No. 38, pp. 1085-1124

124 The Hospitals at Copenhagen. (Kommunehospitalet—1863-1913—og det nye Bispebjerg Hospital.) C. Wessel.

Nordiskt Medicinskt Arkiv, Stockholm

XLVI, Surgical Section No. 1. Last indexed August 2, p. 378

125 *Tubal Pregnancy. (Zur Klinik der tubären Schwangerschaft.) I. P. Hartmann.
126 *End-Results of Operative Treatment of Fractures. (Ueber blutige Frakturbehandlung—Osteosynthese.) A. Troell.

125. Tubal Pregnancy.—Hartmann devotes eighty-four pages to a critical review of ninety-three cases of tubal pregnancy; fifty-one of the patients were over 30, and sixty-one had passed through one or more pregnancies, three, six; one patient, ten. In eighteen cases there had been much hemorrhage; in three it had been sudden and profuse, one patient being thus attacked on a sea voyage; one felled suddenly by it on the street, and the third in the hospital where she was being prepared for a vaginal operation. In seven others the anemia developed more gradually, and in the other eight there had been a period of slight attacks of pain long before serious symptoms developed. In nineteen cases there was little if any hemorrhage; in twelve in this group the microscope first explained the nature of the trouble. Vertigo, nausea and vomiting were among the early symptoms in a number of cases. When there is slight hemorrhage into the fetal membranes and the ovum dies and becomes transformed into a mole, the presence of the mole as a rule exposes the patient to no danger, he states. The mole gradually becomes organized and is reabsorbed. This occurs so completely that cases are known in which conception occurred by way of a tube which had at one time been the seat of a tubal pregnancy. He regards curetting as liable to prove dangerous, but says that no harm happened to result although curetting had been done on a mistaken diagnosis in a few cases before the ectopic pregnancy was suspected. In sixteen cases a conservative incision was made in the vagina back of the uterine cervix; this is applicable only when certain that the worst has passed and that we have merely the relics of the process to contend with. Drainage must be kept up for two weeks. Laparotomy is being preferred more and more; it was applied in sixty-six cases; twenty of the women became pregnant again later. Excluding the patients who required removal of the adnexa on both sides, this brings to 40 per cent. the number of women who conceived anew after operative treatment of the tubal pregnancy. When proper treatment is applied at once and no serious relics of the ectopic pregnancy are left, the prospects of conceiving anew are scarcely impaired, while there is comparatively little prospect of pregnancy later when there has been a large hematocele. The proportions in his cases were conception later in 63.3 per cent. of the fourteen women with sudden profuse hemorrhage in the abdominal cavity receiving prompt treatment; 40 per cent. in fifteen with development of a mole with comparatively little bleeding; 36.3 per cent. of eleven with repeated slight hemorrhage into the abdominal cavity, and only 10 per cent. among ten women with very large hematoceles.

126. Operative Treatment of Fractures.—Troell gives ten four-page tables showing the details of the eighty-seven cases of fracture given operative treatment, in which a recent reexamination was possible. The number of fractures thus treated with osteosynthesis was 194 during the years 1885-1910, 6 per cent. of the total fracture cases. The ultimate outcome was found satisfactory in only 83.6 per cent.; it was a trifle better, 89.5 per cent., in the joint cases. The best results were obtained with fracture of the neck of the femur and of the humerus in or just above the condyles. The operation proved most successful when it was done soon after the fracture; the limb must be exercised after a delay of not more than two weeks. Roentgenography shows that deforming arthritis frequently develops in the adjoining joint injured more or less in the trauma causing the fracture; this is the explanation for the mediocre results sometimes obtained. Years may elapse before there are any clinical manifestations on the part of the joint. Static and mechanical disturbances are responsible for the deforming lesion, not the osteosynthesis. Examination of the records of two large insurance companies in Sweden shows that 15 and 18 per cent. of the fracture cases resulted in permanent disability in time. The estimation as to the ultimate functioning of a fractured limb has not much chance of being correct if it is made before the lapse of from two to four years after the injury.

Ugeskrift for Læger, Copenhagen

September 18, LXXV, No. 38, pp. 1561-1598

127 The Hospitals at Copenhagen. S. Bang.

Upsala Läkareförenings Förhandlingar

XVIII, Nos. 5-6, pp. 271-456. Last indexed July 19, p. 234

128 *Means to Prevent Operative Pneumothorax. K. H. Giertz.
129 Case of Acute Primary Inflammation of the Cecum. (Om akut primär typhlit.) G. Nyström.
130 *Symptomatology of Paralysis from a Brain Tumor. (Fall af tumor cerebri.) G. Bergmark.
131 Absorption of Ultraviolet Rays by the Lacrymal Secretion. (Om tårvätskans absorption af ultraviolett ljus.) C. Lindahl.
132 Tuberculin-Substance in Cerebrospinal Fluid in Tuberculous Meningitis. G. Bergmark.

128. Means to Prevent Operative Pneumothorax.—Giertz describes a differential-pressure chamber that has been added to the equipment of the Umea hospital. It is modeled on Sauerbruch's chamber but is said to have several important innovations. In connection with this description, Giertz gives illustrations of the other contrivances of the kind in use, including Willy Meyer's at New York. The article is thus a comprehensive review of the achievements to date in the mechanical control of operative pneumothorax, with twenty-five illustrations, two plates and nearly ten pages of bibliography arranged alphabetically for each of the last nine years. The Umea chamber is arranged for the patient to breathe under negative pressure. The chamber is large enough for the patient, operator, two assistants and three nurses with ample space for all; the anesthetist is thus in the same room with the operator. The patient breathes through a mask; the air under negative pressure is brought from without the chamber through a large flexible aluminum tube. Oxygen and an anesthetic can be added to the air in the tube as desired. The patient is otherwise free and there is no binding at the neck as with some of the other arrangements for differential pressure. Of course with a mask there is always a liability to trouble if the patient vomits, and Küttner has reported the death of a patient from acute dilatation of the stomach from air having been forced into it. This is liable to occur with any technic for differential pressure—mask or no mask—except with Meltzer's intratracheal insufflation. Even with this, there is danger of subcutaneous emphysema; Luke has recently reported a case of this following intratracheal anesthesia. The mask technic has the great advantage over insufflation that it does not require preliminary general anesthesia, like the latter. Giertz claims for his apparatus that it applies the principle of negative pressure while combining with it all the advantages of overpressure, and that it requires no special mechanical skill to construct it.

130. Symptomatology of Cerebral Paralysis.—Bergmark removed a sarcoma from the left upper part of the precentral convolution in a man of 57. The sarcoma had been causing jacksonian epilepsy and paresis with signs of pressure on the brain and partial paralysis of the upper arm and shoulder. Its removal was followed by complete paralysis of the right side, sparing only the sternocleidomastoid and the abdominal muscles. Bergmark has found thirteen other cases on record of this partial proximal paralysis of the arm The case is studied from several standpoints, especially the behavior of the diaphragm and the percussion findings on the paralyzed side, the agraphia, etc.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXI, No. 18 Chicago, Illinois November 1, 1913

THE RELATION OF PATHOLOGIC PHYSIOLOGY TO INTERNAL MEDICINE *

ALBION WALTER HEWLETT, M.D.
ANN ARBOR, MICH.

For surgery, pathologic anatomy has furnished a basis for both diagnosis and treatment. The tumor or foreign body can be taken out, the inflamed part incised or removed, the obstructed passage dilated or the hollow viscus drained. For internal medicine, pathologic anatomy has been equally important as a fundamental basis in the diagnosis of disease; and it has furnished an exact demonstrable basis for many symptom-complexes. So far as treatment is concerned, however, its direct value is far less evident, for pathologic changes in structure are but rarely influenced by medicine. The clinician schooled in pathologic anatomy is therefore apt to be led into a position of therapeutic nihilism, placing his reliance chiefly on the curative forces of Nature which are to be assisted here and there by medical care and by nursing. This attitude, which was prominent in certain clinical schools during the last century, found its expression in the saying that in Vienna the ideal patient was he whose case was diagnosed by Skoda and whose necropsy was performed by Rokitansky.

At present medical therapy has assumed definite broad lines of development, and optimism in regard to its future generally prevails. Therapeutic advances have been due, in the first place, to the growth of our knowledge of the causes of internal diseases. Whenever possible these causes are to be attacked before they have fastened themselves on the individual, and the science of preventive medicine with its recent but remarkable record of achievement bears witness to the fruitfulness of this line of endeavor. Preventive medicine is rapidly passing into specialized hands, not only as a research and academic subject but in its application to the general health of the community. Yet the use of preventive methods will ever fall within the province of the general practitioner. He must instruct his immediate clientele how best to avoid diseases in general and he must protect them when particular dangers threaten. In chronic affections a knowledge of the cause of the disease may make it possible to limit or to prevent further ravages; in recurrent affections a knowledge of the etiology may make it possible to prevent future attacks. Finally, direct causative therapy has yielded brilliant results in special instances, as in malaria, syphilis, diphtheria and scurvy. At present, however, there are relatively few internal diseases in which a direct causative therapy is successful after the disease has once manifested itself.

If we turn now to that large group of diseases to which no etiologic line of treatment is at present applicable, we find that the advances in therapy, of recent years, have been due largely to the fact that we have learned to recognize clearly that even when the underlying anatomic changes are unknown or inaccessible to treatment, nevertheless much may be done for the patient by correcting so far as is possible the essential functional disturbances which are the immediate causes of his symptoms. The dietetic treatment of diabetes, the dietetic and acid treatment of gastric achlorhydria, the use of digitalis in certain forms of cardiac insufficiency and the restriction of chlorids in special types of edema may be cited as brilliant examples of the effectiveness of medical treatment directed against disturbed functions rather than against anatomic changes or etiologic factors.

Pathologic physiology, the science of disturbed function, has thus become one of the important underlying sciences of medical practice. From the point of view of the clinic, it seeks to explain and to correlate the disturbances in function which occur in patients; and it is the scientific basis of that therapy which is directed against disturbances of function rather than against causes or changes in structure. Although the importance of this subject is now generally recognized, its study and advancement have acquired no definite place in the medical curriculum, in the clinic or in the laboratory. In this paper it is my purpose to emphasize the intimate relation which exists between pathologic physiology and internal medicine, and to discuss some methods whereby the clinical aspects of pathologic physiology may be advanced.

METHODS OF STUDY

Every physiologic process is potentially liable to disturbances; and in its broader aspects pathologic physiology includes the study of all possible functional deviations from the normal. From the point of view of the clinic, however, certain of these deviations assume importance because they are encountered in the course of human diseases. The clinic, therefore, selects its special problems from the general domain of pathologic physiology. It must formulate its problems and it must test the applicability of the general principles of pathologic physiology to the special cases of disturbed function which come within its range of activity.

The problems of pathologic physiology that arise within the clinic may be studied either on patients or on animals. Each method of study has its advantages and each its limitations. The advantage of studies on patients is derived from the fact that we are dealing directly with human disease. Whenever a new method of study in the realm of physiology, biochemistry or

---

* Chairman's Address before the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

immunology is developed, the question arises as to its *applicability* to patients. If applicable, it must be used in the study of the various diseases encountered in the clinic. Within recent years, for example, the clinical study of the venous pulse and of the electrocardiogram have thrown a flood of light on the diagnosis and treatment of cardiac irregularities; bloodless methods for the estimation of arterial blood-pressure have brought into relief the importance of chronic arterial hypertension; physiologic studies on caloric requirements have profoundly affected our treatment of overnutrition and undernutrition, and chemical examinations of the blood have shed light on the question of nitrogen retention in nephritis, on the nature of gout, and on the disturbed metabolism of diabetes. Eventually such methods of study may become a part of the diagnostic or therapeutic armamentarium of the general or special practitioner. Yet, even though a method for studying patients fails to become directly applicable to routine diagnosis and treatment, it may still prove of great value; for in the light of the new studies, clinical manifestations may take on a new or more definite significance, and our attitude toward disease is always profoundly affected by our interpretation of its manifestations.

Many difficulties are encountered in making accurate physiologic or chemical studies on patients. In all cases we must have due regard for the welfare of the individual, and methods which may be to any degree harmful cannot be used. Then too, pathologic conditions in patients cannot be created; they must be observed as they appear spontaneously in the hospital or outpatient service. That chance favors the mind prepared is nowhere more true than in clinical medicine, in which the mind must be prepared to seize on and to make use of the unexpected and often fleeting manifestations that appear during the course of a disease. Most serious of all perhaps is the fact that it is difficult and often wellnigh impossible to create in the clinic the conditions of an ideal experiment with rigidly controlled variants and with numerous repetitions during which possible errors are eliminated.

It is on account of these difficulties that one must often turn to animal experiments for a solution of clinical problems. Here an attempt is first made to reproduce in animals the disease as it occurs naturally in man. In so doing important etiologic facts may be discovered. When the disease has been produced in animals its manifestations may then be studied with all the accuracy of a biologic experiment. Beyond doubt animal experiments, when applicable, constitute the most satisfactory method for studying a disease, and the results obtained by this method carry with them a certainty that can rarely be attained by studies on patients. The limitations of the animal experiment come, in the first place, from the fact that certain clinical disturbances have not been reproduced in animals; and, in the second, from the fact that even though similar disturbances be reproduced, their exact relationship to the disease of man must be established in each case. It therefore devolves on the clinic to restudy a disease in the light of animal experiments in order to establish the degree to which the conclusions drawn from the experiments are applicable to the natural disease of man.

WORKERS IN PATHOLOGIC PHYSIOLOGY

The field of pathologic physiology has been cultivated alike by physiologists, biochemists, pathologists and clinicians. For the physiologist, deviations from the normal have, as a rule, possessed interest only as they have thrown light on the normal functions of the body, and physiologists have usually refrained from stepping deliberately outside of their domain into the pathologic field. Biochemists, on the other hand, have been more ready to interest themselves in pathologic phenomena, not alone because these assist in the solution of physiologic problems but because their study has seemed worthy of separate pursuit; and metabolic disorders have frequently been studied by biochemists who have had no direct clinical ties. In essence, of course, the subject of pathologic physiology is but a portion of pathology in general; yet pathology in the past has concerned itself mainly with structural changes, and the training of pathologists has often been confined to pathologic anatomy. In addition to this, the immediate routine of the pathologist usually consists in the examination of tissues removed at operation or at necropsy, and he is not forced to study changed function. For these reasons there has been a tendency for pathologists to limit their activities to the field of pathologic anatomy; only in recent years has a strong tendency become evident to return to the physiologic field which was cultivated so earnestly by Cohnheim in the last century.

The clinician, on the other hand, encounters the problems of pathologic physiology at every turn. He is continually called on to interpret and to value the disturbances of function met in his patients and his conduct is deeply influenced by the interpretation which he places on disturbances encountered. From experience he learns to associate certain groups of symptoms with certain other groups. Frequently the anatomic changes which are present offer a fairly simple explanation for the phenomena encountered; but again they give little or no help and he must think in pure terms of disturbed function. To answer the many perplexing questions which arise in the clinic, carefully planned observations on patients or exact experiments on animals must frequently be resorted to.

It has been suggested that the more difficult questions which arise in the clinic should be submitted to the pure medical scientist for answer. The biochemist, for example, might be invited to study the chemical disturbances in cases of diabetes or gout, and the physiologist might study patients with cardiac irregularities, high blood-pressure or disturbed secretion. This general method for studying the problems of internal medicine has its manifest advantages in that it secures the services of experts. At the same time its inherent defects should not be lost sight of. The physiologist or biochemist often has no immediate interest in the problems of the clinic, but prefers to devote himself to the more fundamental aspects of his subject. He is apt to be restive under the clinical limitations which prevent conclusive experiments and often necessitate intermittent work owing to an inability to secure proper material. Finally, the scientific worker often prefers to work in his own laboratory rather than on material which is under the general control of an associate. For these reasons it seems to me that the burden of the work on patients must ever fall on the clinical department itself. The scientist who wishes to test his methods or to solve his problems on patients should be ever welcome to the wards, but the clinician cannot lightly shift the responsibility of his own problems to the shoulders of his scientific brother. Men trained in the methods of physiology and of biologic chemistry are indeed needed in the clinic, but these men should belong essentially to the clinical department and in general they must look for advancement in clinical medicine rather than in the fundamental sciences.

It has also been suggested that whenever the problems of the clinic can be submitted to animal experiment these experiments should be undertaken by men who devote themselves particularly to this line of work. The problems of the infectious diseases have been effectively studied by such specialized workers in bacteriology and kindred subjects; to a lesser extent the problems of pathologic physiology also, so far as these can be studied on animals, are now passing into the hands of workers in experimental medicine or experimental pathology. We cannot but welcome the advent of such departments, which furnish a vigorous stimulus to the study of clinical problems, and teach younger men the scientific aspects of internal medicine; but here again we should not lose sight of the fact that the problems of experimental medicine are derived in the main from the clinic and that the closest interrelation must exist between the two fields. The worker in the clinic should be able at all times to submit his special problems to animal experiments; the results of animal experiments must, moreover, be further tested out on patients in order that conclusions may be rendered valid from the clinical point of view. However much one welcomes the coming of experimental medicine as a separate field of work, its advent cannot be expected to exclude the clinician from the animal laboratory. He more than any other is in a position to be familiar with the exact nature of the problems which arise in the hospital and with the possible applications of animal experiments to medical practice, and he occupies a natural point of vantage in dealing with the problems of pathologic physiology which arise in the clinic.

The position of internal medicine in Germany at the present day is so commanding that it would be well to consider some of the factors which have favored its development in that country. Aside from its organization and methods of academic advancement, one of its striking features is the combined study of theory and practice. Friedrich Müller has pointed out that in contrast to the German school of medicine, the English and American schools have approached clinical medicine much as one would approach trade, which is to be learned by precept and by practice. Valuable as such an attitude may be in the training of medical practitioners, it leaves much to be desired when it comes to the development of medical leaders. For them at least, internal medicine is not simply an application of the healing art; it is also a rapidly growing science. They must be ready, on the one hand, to try all methods of treatment, rational or empirical, proved or doubtful, when called on to alleviate suffering; on the other hand, they must preserve a rigidly scientific attitude when they attempt to interpret clinical phenomena or therapeutic results. Flimsy speculations must be replaced by theory that is based on accurate observation and carefully planned experiments, for no road is too long if the results obtained are decisive. Clinical theory and clinical practice are so intimately bound up in each other that they must advance together; any proposal to divorce the one from the other cannot be regarded as sound in principle.

It must be admitted, however, that the clinician meets difficulties when he attempts a systematic study of the disturbances of function encountered in his patients, or indeed when he attempts to carry out any laborious clinical investigation. These difficulties arise mainly from the absorbing and time-consuming character of his routine duties. He is expected to be a good clinician, expert in the diagnosis and treatment of disease, and the patients entrusted to his care are certainly entitled to the best services that can be rendered. He must often be a teacher, an administrator, and even something of an architect. When to his hospital and academic duties a large private practice is added, little time or energy can be left for carefully planned, systematic investigations which often lead outside the usual routine of medical practice. Exceptional persons will, of course, rise above an unfavorable environment; but experience has shown that in order to have that continuous stream of scientific productiveness which brings rapid and stable advances in our knowledge, the conditions of work must be favorable both to the exceptional person and to the larger number of earnest and capable men who make up the rank and file of scientific investigators. And nowhere, it seems to me, is carefully planned and systematically executed work more needed than in our hospitals. To furnish proper facilities and an efficient organization for such work is one of our pressing problems if we are to attain and hold an international position in the progress of internal medicine.

If carefully conducted research be regarded as a fundamental duty of the medical clinic, it is evident that our clinics must work toward a higher type of organization. Trained assistants must be retained over relatively long periods of time so that they may acquire perfect familiarity with hospital practice and at the same time have time and means at their disposal for investigation. The training acquired during these long years of service should come to be recognized as the best preparation for consultation practice or for an academic career. Such experienced assistants can relieve the clinical chief of much routine work. He in turn must give his best energies to the clinic, and private practice must not become a burden on his time. I think that the proposal to eliminate his private practice altogether would prove an interesting experiment, although one cannot foresee all its far-reaching consequences. To restrict his private practice to the hospital consulting-room and private ward would be a less radical step and would give the clinical head far greater scientific opportunities than he usually enjoys. It would place at his disposal all the machinery of the clinic and would allow him to spend all of his time in his hospital and laboratory.

Time might also be conserved by relieving certain clinicians of the care of the general medical service and by placing under their immediate control only those patients who are suffering from the diseases in which the clinicians are particularly interested. Such a research clinic has its manifest advantages in the way of concentration. In a medical school, however, it could not in itself furnish training in the diagnosis and treatment of the various diseases with which the practitioner must be familiar, and it would have to be supplemented by a more general department of internal medicine. It may be that our medical schools are drifting toward such research clinical departments, but it has always seemed to me that such a separation in the school of the practical training in clinical medicine from its theoretical or research aspects would be unfortunate in many ways and especially for the student who needs not only a familiarity with medicine as a descriptive science but also some acquaintance with the application of exact methods and reasoning to clinical work so that he may experience the difference between speculative and well-founded explanations for disease phenomena.

CONCLUSION

It seems to me that it is the duty of specialists in internal medicine to study the diseases which come within their sphere of activity with all the scientific care and accuracy attainable. Studies in pathologic physiology which belong to this field are often time-consuming and demand special training and equipment; and, with the increasing complexity of medical knowledge, such studies will demand more and more from the clinical staff. To meet these increasing demands it is becoming more and more imperative that the clinical staff should be highly trained and should devote the major part of its energies to the hospital. Only in this way can we hope to attain our full growth in the scientific development of internal medicine.

STUDY OF A CASE OF CONGENITAL HEMOLYTIC JAUNDICE*

ERNEST T. F. RICHARDS, M.D.
Instructor in Medicine, University of Minnesota
AND
WILLIAM C. JOHNSON, M.D.
Instructor in Pathology, University of Minnesota
MINNEAPOLIS

The entire subject of hemolytic jaundice is to-day one especial interest not only because of the rarity of the ndition and its important bearing on obscure diseases the blood and spleen, but also on account of the scant tention which it has received in text-books on medi- ne and the few articles concerning it which have opeared in this country. Notable exceptions to this tter statement are the excellent contributions by Tiles- m and Griffin[1] and Thayer and Morris,[2] in both of hich personal observations on cases are reported and ie history of the disease with its characteristic features ly discussed.

The term "congenital hemolytic jaundice" is applied a rare condition of unknown etiology, characterized a chronic non-obstructive jaundice, splenomegaly, robilinuria, and an anemia, which, dependent on hemol- is, shows, on the one hand, evidence of marked struction of the red blood-cells and, on the other, gns of their continuous active regeneration. A history heredity has been a prominent feature in many cases, which, therefore, the name "familial hemolytic icterus" has been applied. In addition, a closely related type of the disease can be definitely recognized, namely, the acquired. It is also probable that certain border-line cases do occur, as those of Chauffard and Troisier[3] and Aschenheim,[4] which cannot with precision be placed in either group.

The following is the report of a typical case of the "congenital" type which has been under observation for the past year:

History.—Margaret R., aged 23, married, housewife, was admitted to the University Hospital (University of Minnesota) April 5, 1912, complaining of jaundice and a "swelling" in the upper left abdomen. *Adopted at the* age of 4½ months, the patient knows nothing of her parents and has never been able to learn anything concerning them. She was jaundiced when adopted and was said to have been so since birth. Jaundice varying in intensity has persisted ever since, but has not been accompanied by any of the symptoms of biliary intoxication, such as pruritus, hemorrhages and languor. The icterus has not been noticeably increased by muscular exertion or fatigue, or at the menstrual periods. The stools have never been clay-colored at any time so far as the patient knows. Menstrual history is normal. The patient married at 18 years; she had two children; the first was still-born; the second premature (seventh month) and did not live. At the age of 6 years she had a severe attack of inflammation of the joints with fever, and pain in the region of the heart. Between the ages of 1½ and 14 years the patient was subject, at intervals varying from a few months to a year, to attacks of abdominal pain accompanied by vomiting, fever and a decided increase in the jaundice. At such times the stools, so far as she knows, were normal in color. After one of these attacks, at 13 years of age, the patient was seen by a physician who has informed us that at that time the jaundice was marked, there was a distinct anemia and nothing abnormal was detected on examination of the abdomen. Six months later Dr. J. E. Moore performed a cholecystotomy and removed several gall-stones. Following this, the patient believes that she was free from jaundice for a year and a half, after which it again returned. In 1909, after an unusually severe attack of abdominal pain with "chills and fever," her spleen was discovered to be enlarged.

Since that date the patient has had three febrile attacks, each accompanied by an exacerbation of the jaundice and a distinct sense of swelling in the upper left abdomen. These seizures have not been attended, however, by chills or abdominal pain. Stools, as in previous attacks, were never clay-colored. In the last attack before admission (March, 1912), fever ranged as high as 103 to 104 F. for a day or two, the jaundice was intense and the swelling in left abdomen (spleen) was marked.

Physical Examination.—April 5, 1912. The patient is a well-nourished young woman remarkably free from all discomfort. The skin of the entire body and the sclerae are jaundiced a deep orange-yellow. The mucous membranes are somewhat pale. The tongue is clean. Pupillary and other reflexes are active. Intelligence is keen. There is no adenopathy. The heart is 12.5 cm. in width. A soft systolic murmur, only slightly transmitted, is heard at the apex; another, louder than the first, with its maximum intensity in the first left interspace, is heard at the base. Pulse is regular, 80 to 84 per minute. Systolic blood-pressure is 116. Lungs are negative.

The spleen is greatly enlarged. The edge is readily palpable 8 cm. below the costal margin, descending on deep inspiration somewhat beyond the umbilicus. On bimanual palpation it is freely movable, very firm and free from tenderness.

The liver is slightly enlarged; the upper border is at the fourth rib in the mid-clavicular line; the lower border, soft and palpable, is just below the costal margin.

Laboratory Findings.—Urine: Usually highly colored. Traces of albumin present on several occasions. Sugar absent. No indican. Bile negative. Urobilinogen (*paradimethylaminobenzaldehyd*) and urobilin (Schlesinger's; spectroscopic) reactions strong. Microscopically nothing significant.

Stools: Deeply pigmented. No blood, pus, ova or parasites. Corrosive-sublimate test shows hydrobilirubin. No bilirubin.

Blood: Records prior to our own: March 21, *1904, red* blood-corpuscles 3,850,000; white blood-corpuscles *13,250;* hemoglobin, 47 per cent. April and May, *1912,* average count red blood-cells 2,600,000; white blood-cells 7,000 to 9,000; differential, polymorphonuclear *neutrophils* from 50 per cent. to 60 per cent. *and lymphocytes* from 30 per cent. to 40 per cent.

Our own observations on the blood are as follows: March 20, 1913: Red blood-corpuscles 2,600,000; hemoglobin 45 per cent. (Fleischl-Miescher); color index .87; white blood-corpuscles 10,800. Differential count of 500 cells (Wright's stain):

---

* Read in the Section on Practice of Medicine of the American [illegible] at the Sixty-Fourth Annual Session, held at [illegible] 1913.

* *Because of lack of* space, this article is abbreviated in THE JOURNAL. The complete article appears in the *Transactions of the* Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

1. Tileston and Griffin: Am. Jour. Med. Sc., 1910, cxxxix, 847.

2. Thayer and Morris: Bull. Johns Hopkins Hosp., 1911, xxii, 85.

3. Chauffard and Troisier: Bull. et mém. Soc. méd. d. hôp. de Paris, 1908, Series 3, xxv, 41.

4. Aschenheim: Quoted from Türk: Klinische Haematologie, 1912.

Polymorphonuclear neutrophils	66.6%
Lymphocytes	22.0%
Large mononuclears	6.2%
Transitionals	3.0%
Eosinophils	0.6%
Basophils	1.0%
Degenerate forms	0.6%

In April and June similar findings were noted except for a greater number of leukocytes (12,000 and 12,800) and a slightly higher percentage of polymorphonuclear neutrophils. Red cells have constantly manifested microcytosis, anisocytosis, anisochromia and polychromatophilia. Poikilocytosis is slight. Many erythrocytes contain basophil granules; a few show Jolly-bodies. Erythroblasts are very rare. Platelet count (Wright's method), 240,000 per cubic millimeter. Coagulation time, normal.

Osmotic resistance of erythrocytes:

	Initial hemolysis	Complete hemolysis
March 20, 1913, whole blood	0.72 % NaCl	0.46 % NaCl
April 30, 1913, whole blood	0.65 % NaCl	0.40 % NaCl
April 30, 1913, washed corpuscles	0.675% NaCl	0.475% NaCl
June 6, 1913, whole blood	0.70 % NaCl	0.40 % NaCl
June 6, 1913, washed corpuscles	0.80 % NaCl	0.45 % NaCl

Blood-serum: Clear, bright golden yellow, without a trace of hemoglobin. Syllaba's test (modification of Conner and Roper)[11] shows a strong reaction for bilirubin. Urobilin not detected. Patient's washed corpuscles not agglutinated by her own serum. Freezing point of serum — .58 C. Wassermann reaction negative.

Operation.—On May 18, 1912, at the patient's request, a laparotomy was performed. A much shrunken gall-bladder, not containing any calculi, was removed. The patient was discharged from the hospital June 8, 1912.

Present Condition.—June 6, 1913: During the past year the patient has felt remarkably well and carries on her household duties without difficulty. She had been quite free from any of the acute attacks until recently when she went through a rather milder one than usual. The jaundice, as hitherto, has been constant, though at times it is slightly less marked than at others. The spleen is firm and greatly enlarged, the lower edge being 12 cm. below the costal margin. The lower border of the liver is felt a trifle lower than it was a year ago and is also slightly firmer. Patient has been kept constantly on iron, as she finds that if it is discontinued she soon begins to feel somewhat weak.

COMMENT

The study of this case brings out prominently the important features of congenital hemolytic jaundice, which may be classified as (1) jaundice, (2) splenomegaly, (3) diminished osmotic resistance of the erythrocytes, (4) anemia with characteristic blood changes, and (5) urobilinuria.

Jaundice.—Essentially chronic in type, this symptom usually dates from birth or early infancy, but may not appear until later. Pigmentary in character, it does not give rise to any of the symptoms usually ascribed to the presence of bile salts in the blood (itching, bradycardia, progressive emaciation) and is unaccompanied by clay-colored stools or bilirubinuria. In the case under observation the rapid deepening of the icterus during the periods of exacerbation (*crises hémolytiques*) has been a striking feature. At these times, and for a long period after, the color of the skin has been a deep golden yellow. An interesting point is the history of its disappearance during the one and one-half years following cholecystotomy in 1903. This may merely have been one of the periods of intermission so characteristic of the disease, and it is highly probable, in accordance with Chalier's[12] observations, that a subicteric tint was actually present, though unnoticed by the patient.

Splenomegaly.—Particularly during the exacerbations or the so-called "crises" of the disease, splenomegaly may be extreme, the splenic border frequently extending well beyond the median abdominal line. Pain, usually of a colicky nature, may occur in the splenic region, as in the case of Vaquez and Giroux,[13] in which a splenectomy (with fatal outcome) was performed to relieve it. Following the attacks the splenic tumor distinctly subsides but never entirely disappears, usually being left somewhat firmer and larger than before. In our case the increase in size of the spleen during the crises takes place rapidly, to such an extent, in fact, that the patient herself is conscious of its growth.

Diminished Osmotic Resistance of Erythrocytes.—Studies of the globular fragility in conditions of obstructive jaundice, especially in the classical work of Vaquez and Ribierre,[14] had demonstrated an augmentation of resistance to hemolysis by hypotonic salt solution. The method devised by Ribierre[15] for this investigation was simple and ingenious. Making use of it Chauffard investigated the resistance of the corpuscles in three cases of chronic acholuric icterus. In sharp contrast to the findings in obstructive jaundice, these cases presented a markedly diminished resistance. While in normal individuals, according to Chauffard, hemolysis commences at 0.44 per cent. and is complete at 0.36 per cent., in the three cases observed by him the first appearance of hemolysis occurred at 0.62 per cent., 0.66 per cent., and 0.52 per cent., respectively. Widal and his associates later observed diminished corpuscular resistance in acquired types of the disease, bringing out the fact that it was more marked if the corpuscles tested had previously been separated from their plasma. While this discovery applied to congenital as well as acquired hemolytic jaundice it was of particular value in the latter condition, in some cases of which the corpuscular fragility may be so little altered that its increase can be detected only when deplasmatized cells are used. In normal persons little or no difference exists between the fragility of corpuscles in whole blood or when freed from plasma. Throughout the cases of hemolytic jaundice described since the work of Widal and Chauffard, diminished osmotic resistance has appeared to be a practically constant feature. In a few instances, such as those of Lommel[16] (familial) and Mosse[17] (acquired), exception must be made.

In testing the osmotic resistance we have employed a technic rather more precise than Ribierre's. In each of twenty-four small test-tubes (from 7 to 8 mm. in caliber) is placed 1 c.c. of graduated standard solutions of sodium chlorid, differing in strength by 0.025 per cent., and progressively diminishing from 0.85 per cent. to 0.275 per cent. Twenty c.mm. of blood, obtained by puncturing the finger, are measured into each tube (the pipet furnished with the Sahli hemoglobinometer is convenient for this purpose) and immediately thoroughly mixed. A sufficient quantity of blood (from 1 to 2 c.c.) is also collected in citrated salt solution (0.85 per cent. each of sodium chlorid and sodium citrate). After centrifuging and washing twice in 0.85 per cent. salt solution a 50 per cent. suspension is employed in the same way as the whole blood. As soon as the corpuscles have settled to the bottom of the tubes, the degrees of hemolysis are observed by noting the color of the supernatant fluid and the amount of sediment. Ordinarily only the points of initial and complete hemolysis are of importance. The dilution employed (1 to 50) seems to us to be more satisfactory than stronger mixtures in which the concentrations of the solutions are materially altered by the presence of salts in the added blood.

---

[11] Conner and Roper: Tr. Assn. Am. Phys., 1908, xxiii, 222.

[12] Chalier: Thesis, Lyons, 1909.

[13] Vaquez and Giroux: Bull. et mém. Soc. méd. d. hôp. de Paris, 1907, Series 3, xxiv, 1184.

[14] Vaquez and Ribierre: Compt. rend. Soc. de biol., 1902, liv, 1074

[15] Ribierre: Thesis, Paris, 1903, described by Chauffard, Semaine méd., 1907, xxvii, 25.

[16] Lommel: Deutsch. Arch. f. klin. Med., 1912, clx, 174.

[17] Mosse: Berl. klin. Wchnschr., 1913, l, 684.

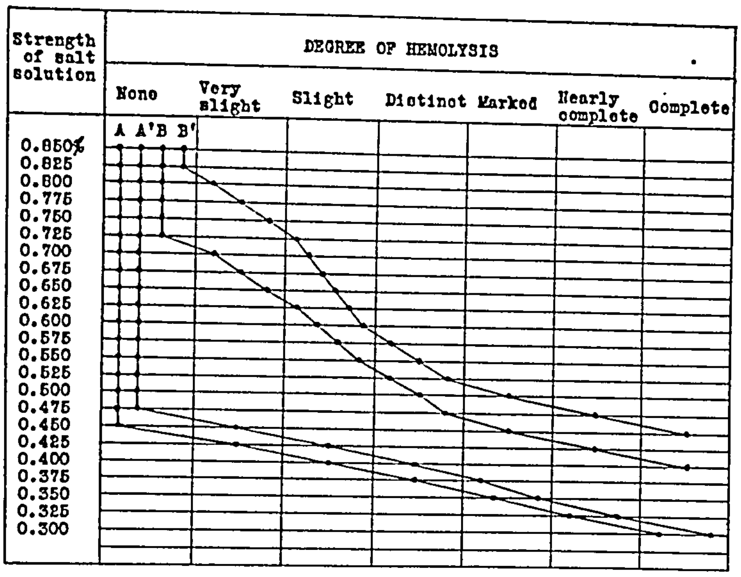


Fig. 1.—Diminished osmotic resistance of erythrocytes of patient with congenital hemolytic jaundice. A, results of testing corpuscles of normal adult (control), whole blood; A', same, washed corpuscles; B, patient's whole blood; B', patient's washed corpuscles. Note especially the higher point at which the patient's corpuscles show initial (very slight) hemolysis. Separating the corpuscles from their plasma has produced little effect in the control but has considerably increased the fragility of the patient's cells.

Anemia with Characteristic Blood Changes.—An anemia of moderate degree is almost invariably present in congenital hemolytic jaundice. The number of red cells is reduced, usually to between three and four million, less frequently below three. Counts below two million are seldom noted. The percentage of hemoglobin is correspondingly reduced, so that the color index remains near 1, but it may be higher or lower. The number of leukocytes appears to vary; most often normal or diminished, at times a slight leukocytosis occurs, as in our own patient. The relative percentages of the varieties of white cells show no constant variation from normal. In exacerbations of the anemia the presence of a few myelocytes is often noted.

While none of the foregoing changes are to be regarded as in any way distinctive, certain morphologic changes in the erythrocytes are of much greater significance. These have been of special interest to us in the study of our case. In comparison with the degree of anemia indicated by the reduced numbers of red cells, the latter show unusual variations in size, with but slight variations in shape. At the same time the average diameter of the corpuscles, as Chauffard noted, is greatly diminished. The latter feature is best brought out by comparison with the normal blood. In Figure 2, A and B are photomicrographs with the same magnification of preparations of blood from a normal individual and our patient respectively. In examination of the latter specimen alone one might easily mistake the large cells in the patient's blood for macrocytes. Comparison, however, shows them to be no larger than the largest cells in the normal blood.

Measurements of 1,000 erythrocytes in thin films of the patient's blood served as the basis for the construction of the curve in Figure 3 (diameters measured to the half micron with Zeiss Messokular No. 3). In this, anisocytosis is evidenced by the extremes in size and by the fact that only half as many erythrocytes (30 per cent.) approximate the mean diameter as in the normal curve (60 per cent.). The average cell (5.8 microns of this patient's blood is a microcyte, since cells of less than 6 microns in diameter are regarded as such. While anisocytosis is so marked in this disease, poikilocytes are few. Not more than 2 per cent. of the cells in our case could be considered sufficiently deformed to come under this head. Among them, however, were many bizarre forms, including small thread-like bodies and dumb-bells. Small bodies from 1 to 2 microns in diameter occasionally noted were considered schistocytes. No less striking than the variations in size are those in the staining qualities of the red cells. These changes are of two types. A moderate degree of polychromatophilia is present, affecting from 2 to 3 per cent. of the cells. Anisochromia, or variation in the depth of staining, is extreme, with all gradations from small, intensely hyperchromatic cells to large pale ones. The pale central depressions are not increased as in chlorosis.

The presence of nucleated red cells has been observed in some cases of hemolytic jaundice. With the degree of anemia manifested in our case it is rather surprising to find so few, only one normoblast being observed in searching several preparations. Other structures, nuclear in nature (sometimes noted in other anemias), are more numerous, namely, the so-called Howell or Jolly bodies (Fig. 4, b). These are small, round, sharply outlined bodies occurring in a few of the larger erythrocytes. They may be centrally located, but are more often eccentric. With Wright's stain these particles appear purple, indicating their chromatin content and nuclear origin.

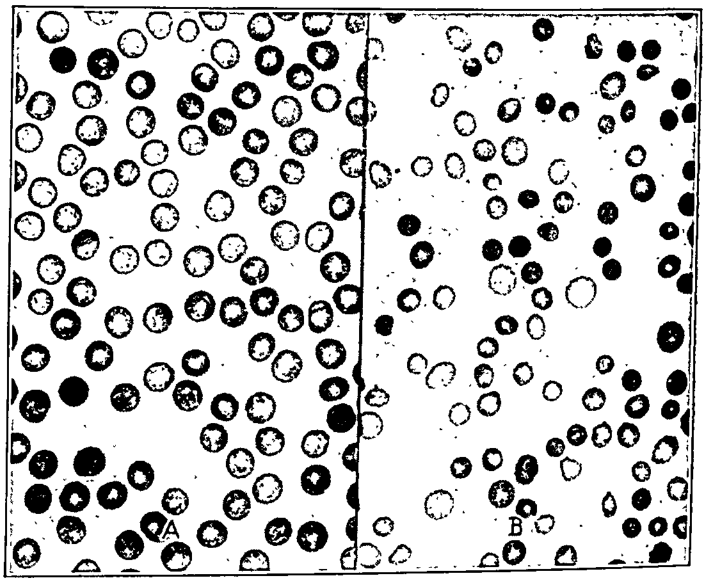


Fig. 2.—Photomicrographs (same magnification) showing blood of patient with congenital hemolytic jaundice (B) in comparison with normal blood (A). The patient's corpuscles show marked variation in size with considerable reduction in the average diameter, the largest erythrocytes being no larger than those of normal blood.

Many of the erythrocytes contain inclusions different in nature from those previously mentioned. These are large, coarse, irregularly shaped basophil granules (Fig. 4 b) which are colored blue with Wright's stain in contrast to the purple of nuclear structures. While one ordinarily has to search before finding a Howell-Jolly body, the cells with basophil granules are noted in nearly every field. These structures generally occur singly; less frequently two or more may be noted in the same cell. The ordinary punctate basophilia, frequently noted in anemias, and especially in lead poisoning, is lacking. Since these observations, Jolly bodies and basophil granules have been mentioned as occurring in a case of hemolytic jaundice (acquired type) by Huber,[19] who states that these findings had not hitherto been described in this disease. As he remarks, the granules may easily be mistaken for a granular precipitate occurring on the surface of the film.

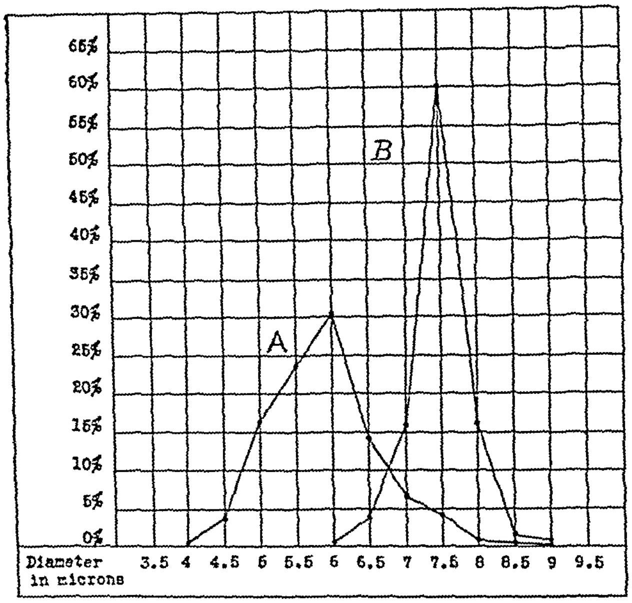


Fig. 3.—Anisocytosis and marked decrease in size of erythrocytes in congenital hemolytic jaundice. A, measurements of patient's corpuscles (average diameter of 1,000 cells 5.8 microns); B, composite curve, for comparison, from two normal adults (average diameter of 500 cells 7.48 microns).

Attention was first directed by Chauffard and Fiessinger[20] to the presence of certain other granular structures in the blood of patients with hemolytic jaundice. When fresh blood is treated with a basic dye by one of the methods of "postvital" staining, some of the red cells show a peculiar network of threads or granules, termed the "substantia granulo-recticulo-filamentosa." These structures, which cannot be demonstrated in fixed smears and are not identical with punctate basophilia, are seldom found in health in more than 1 per cent. of the corpuscles. In various anemias they may reach 10 percent., but are seldom more numerous. Their abundance in cases of hemolytic jaundice establishes a point of considerable diagnostic importance. In most instances percentages of ten to thirty may be noted; in a few, more than one-half of the cells have shown granules. While these basophil structures are not understood, they are generally believed to be of plasmatic rather than nuclear origin, and to correspond to the polychromatophilia of fixed and stained smears. Such a correspondence seems doubtful when such discrepancies in numbers are noted as occurred in our own case, in which less than 5 per cent. of the erythrocytes were distinctly [illegible], but 32 per cent. showed granules by [illegible]. Being generally regarded as representing unripe or immature forms because of their content of basophilic substance, the high precentages of these "granular corpuscles" are evidences of unusually active regeneration of blood. It does not seem unreasonable to credit the granules which we noted in stained smears with the same significance.

We have obtained satisfactory preparations by collecting a few drops of blood in a centrifuge tube containing physiologic salt solution, in which enough brilliant cresyl blue has been dissolved to render the mixture opaque. In half an hour the suspension is centrifuged. A loopful of sediment mixed with a loopful of serum is spread in a thin film on a slide, fixed by heat and mounted in balsam. In the preparation shown in Figure 4 a, 32 per cent. of the cells contained various amounts of granular substance.

The blood-serum in these cases has been found to be markedly hypertonic according to the results of a few investigators, Starkiewicz[21] even reporting a freezing point of — 0.87 C. in one instance. Our own observation has not confirmed this, but slight alteration being noted (— 0.58 C.).

Urobilinuria.—This may be regarded as an index of the amount of hemolysis which is taking place in the body. With excessive hemolysis leading to an increased excretion of bilirubin into the intestine it is natural to expect a corresponding increase in the amount of its reduction product, urobilin, which in McPhedran and Orr's[22] case amounted to six times that in the stools of a normal control. It is possible that, as Huber believes, the liver, already taxed with an increase in its bile-forming function, is unable to modify all the urobilin that is absorbed and hence it is passed into the circulation and excreted in the urine. The usual failure to detect urobilin in the serum of these patients may possibly be explained by faulty methods. Bilirubin, on the other hand, is constantly present in the serum, rarely, if ever, in the urine.

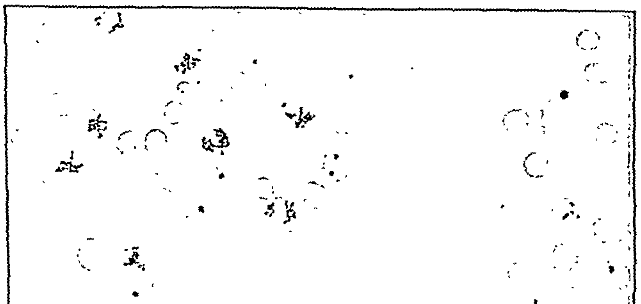


Fig. 4.—Drawings showing features indicating active regeneration of blood in congenital hemolytic jaundice; (a) actual field showing "granular corpuscles" (postvital staining); (b) from fixed specimen (Wright's stain) showing large erythrocyte containing a Howell-Jolly body, and smaller cells with coarse basophil granules.

PATHOGENESIS

The true cause of hemolytic jaundice cannot yet be said to have been established. The characteristic feature of the condition—diminished osmotic resistance of the red blood-cells—is the basis for the belief that the tangible evidences of the disease depend on excessive hemolysis. This view is generally held notwithstanding the fact that Widal and Philibert[24] found that the serum in congenital hemolytic jaundice did not exercise any abnormal hemolytic effect on human red blood-cells. Widal and his school believed that the destruction of the erythrocytes took place in the blood itself, that the bile-pigment formation was hematogenous, and that the splenomegaly was secondary to the enormous work thrown on it by the corpuscular destruction. Minkowski, Chauffard and others, on the other hand, believed that the seat of the excessive hemolysis lay in the spleen. Banti, as a result of the remarkable and lasting effects following splenectomy in his own case and in those of Micheli and Umber, has recently expressed his strong conviction that, in one type at least of hemolytic jaundice, the primary and principal lesion is without doubt in the spleen, its enlargement being due to an excessive increase of its normal function (destruction of erythrocytes). Karsner and Pearce[25] have shown that splenectomy in dogs increases the resistance of erythrocytes, not only to hemolysis by hypotonic salt solution, but also to the action of specific hemolysin.

---

[19] Huber: Berl. klin. Wchnschr., 1913, i, 681.

[20] Chauffard and Fiessinger: Bull. et. mém. Soc. méd. d. hôp. de Paris, 1907, Series 3, xxiv, 1169.

[21] Starkiewicz: Quoted in Chalier's thesis: Rev. de méd., 1909, xxix, 61.

[22] McPhedran and Orr: Canad. Med. Assn. Jour., 1913, iii, 14.

TREATMENT

Banti[10] reports a permanent and complete cure following splenectomy, in 1903, in a case of acquired hemolytic icterus with diminished osmotic resistance of the red blood-cells and splenomegaly. Excellent results have also followed splenectomy in similar cases of Micheli[29] and Fiori[30] and in the case of Umber's[31] (considered by Banti to have been one of hemolytic jaundice). Roth's[32] patient (familial type) twelve years after splenectomy showed marked improvement, but was not completely cured. In Vaquez and Giroux's case, on the other hand, death followed splenectomy in two days.

Chauffard believed that surgical measures were distinctly contra-indicated in hemolytic jaundice. In many cases, as in our own, the continuous administration of iron has seemed to exert a beneficial effect. The malady in the majority of instances, particularly those of the congenital type, does not seriously interfere with the patient's enjoyment of life and capacity for work. A number, as in Tileston and Griffin's series of "family cholemia," have lived to a ripe age.

In view of these several facts, the wisdom of advocating splenectomy in any given case of hemolytic jaundice without a further knowledge of the true pathology of the affection and a clearer understanding of the functions of the spleen in general must necessarily be left an open question.

914 Lowry Building—313 Eighth Avenue S. E.

ABSTRACT OF DISCUSSION

Dr. W. S. Thayer, Baltimore: I have seen two cases of hemolytic jaundice which Dr. Morris and I reported a year or two ago. The first patient I have heard from repeatedly since. When I first saw her seven years ago she was 16 years of age. She had always been, so far as she knew, a healthy girl, but she as well as her parents noticed that she was slightly yellow, and more yellow at some times than at others. She had the appearance of a normal girl, with good color in her cheeks. On close examination, however, the mucous membranes were seen to be quite pale, and there was this distinct slight jaundice. She had a rather large spleen, coming a hand's breadth below the costal margin. She never had above three million red corpuscles; we did get her at one time up to three million six hundred thousand. Hemoglobin percentage was always between 60 and 70. She improved greatly on long-continued treatment with iodin. Dr. Richards' case shows rather more marked anemia than do congenital cases. Apparently a sharp distinction must be drawn between congenital cases and those which come on later in life; but the question arises, Are both one and the same condition, or is the power of resistance of the red blood-corpuscles something that varies with circumstances? There is reason to believe that the latter is the case from the instances of so-called acquired hemolytic jaundice.

There is much discussion as to the cause of jaundice in these cases. Is it truly a hematogenous jaundice in the sense that it is due to a destruction of the red blood-corpuscles without action of the liver, or shall we believe that there is a true jaundice that does not come from the liver? Hooper and Widal have asserted that in these instances of hepatic jaundice, the jaundice was apparently hematohepatogenous. Curiously enough, they seem to rely particularly on the interesting argument that in these cases there is rarely any slowing of the heart, and seldom any of those signs which we see in ordinary jaundice; therefore it is claimed that those signs which are due to the acids are not present, and we have no excessive coloring matter; but these investigators were unaware of the fact that it had already been definitely shown by King and Stewart that the cause of the slowing of the heart is not bile acids, but that in these cases bile pigments are present, and that under these circumstances the fact of the slowing of the heart is not particularly significant.

Broeger and Hooper have, however, shown definitely that bile coloring matter may arise in the circulation from blood coloring matter. The congenital cases, as a rule, need little treatment, except from the point of view of the cosmetic effect, but the acquired cases may be instances in which treatment is of great importance.

Dr. Joseph L. Miller, Chicago: We have under our observation a case of hemolytic jaundice in a boy of 19 years. He presents all the clinical and blood findings of the case described by Dr. Richards, with this exception, that the resistance of the boy's red blood-corpuscles to salt solution is practically the same as the normal, that is, it hemolyzes at .475. I am convinced, however, that this boy has a case of congenital hemolytic icterus.

There are several cases in the literature of this type in which there is apparently no disturbance of the resistance of the red blood-corpuscles. When we test the resistance of the red blood-corpuscles in a case of icterus of three or four months' duration and find this much increased, that is, that hemolysis takes place less readily than normally, perhaps at .03, and then compare the resistance of the corpuscles in a case of simple icterus with this one of hemolytic origin, we find after all a marked difference in the resistance of the red corpuscles.

About twenty cases of removal of the spleen have, I believe, been reported, and all the patients recovered. Some of these were cases of the congenital hemolytic type. We are trying to prevail on this boy to have his spleen removed.

Dr. R. C. Cabot, Boston: I have had a case like Dr. Miller's in which the resistance of the red cells, apparently increased, was greater than normal; in other respects, it corresponded with his entirely—was a congenital case. I have seen cases just like it in every respect, except that they do not have jaundice.

I have been impressed with the fact that often these persons are not very sick—perhaps not sick at all. I have had difficulty in getting some of them to go into a hospital. They had no idea whatever of consenting to such an operation as the removal of the spleen, because they did not feel sick. In view of the fact that we have no other therapeutics to offer, whatever we have to say in relation to the removal of the spleen is important.

---

[24] Widal and Philibert: Gaz. d. hôp., 1907, lxxx, 1275.

[25] Karsner and Pearce: Jour. Exper. Med., 1912, xvi, 769.

[10] Banti: Semaine méd., 1912, xxxii, 265; Sperimentale, 1912, lxvi, 91; Pathologica, 1911, No. 70; Ref. Centralb. f. allg. Path. u. path Anat., 1913, xxiv, 326.

[29] Micheli: Wien. klin. Wchnschr., 1911, xxiv, 1269.

[30] Fiori: Sperimentale, 1913, lxvii, 189.

[31] Umber: Ztschr. f. klin. Med., 1904, lv, 289.

[32] Roth: Ztschr. f. klin. Med., 1912, lxxvi, 23.

Dr. Ernest T. F. Richards, St. Paul, Minn.: In view of the marked grade of anemia which is present in this case, the question of the acquired type has been ruled out by the history and the existing microcythemia and by the absence of the auto-agglutination phenomenon and of eosinophilia.

Dr. W. C. Johnson, Minneapolis: In a well-developed case of congenital hemolytic jaundice the blood changes are striking and definite. It seems to me that it is nearly as easy to diagnose the condition from a blood-picture of the kind here shown as it is, for example, to diagnose a typical case of pernicious anemia. The special characteristics on which the diagnosis rests seem to depend principally on an extremely active regeneration of the red cells.

IMPORTANCE OF THE TUBERCULIN REACTION IN THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS *

V. C. VAUGHAN, Jr., M.D.
DETROIT

Since the introduction of methods of application of the tuberculin test, the results of which are determined by means of the local inflammatory reaction occurring at the site of application, much discussion has arisen with regard to the best mode of procedure and the practical value of the results obtained.

That the tuberculin reaction represents a phenomenon of sensitization is now generally conceded, and, in order to understand fully its significance, it may be well to consider briefly the mechanism involved in the production of sensitization. Normally, foreign proteins as such do not gain entrance into the body. The most frequent pathologic state in which complex proteins do enter the body as such is represented by the bacterial infections in which the bacterial cells represent highly specialized protein substances growing and multiplying within the body. Thus, when the tubercle bacillus enters the body, a specialized protein substance to which we apply the name tuberculin is produced. According to the theory advanced by Vaughan, in response to the presence of this foreign protein, certain body-cells are stimulated to the production of a special proteolytic ferment, through the action of which a chemical cleavage of the tuberculin occurs with the liberation of a toxic cleavage product, one of the effects of which is a decided irritant action on the tissue with which it comes directly in contact. This local reaction is characterized by hyperemia, increased secretion and, when marked, by the occurrence of minute punctiform hemorrhages, the latter being especially noted when the tissue involved is a mucous membrane or a serous surface. The degree of the inflammatory reaction obtained depends on the amount of the irritant poison which is present at any one time, or perhaps better, on its concentration. This local inflammatory reaction, due to the effects of toxic substance liberated through the action of the specific ferment occurring in the body of the tuberculous on the tuberculin locally applied, forms the basis of the tuberculin test, whether applied to the abraded surface of the skin, the mucous membrane of the conjunctiva or as the percutaneous or intracutaneous reactions.

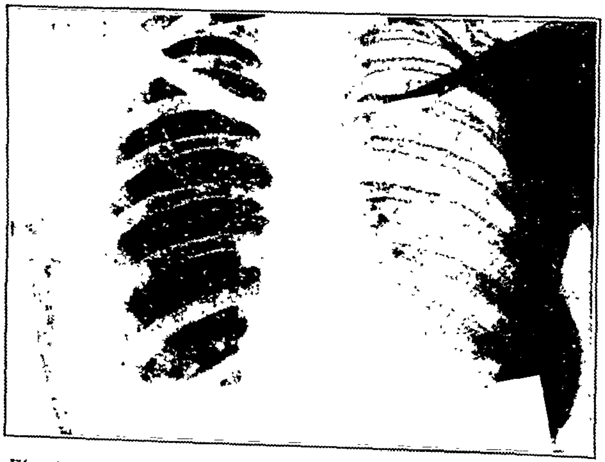


Fig. 1.—Patient 6, L. G., aged 30 years. Eye reaction negative; Secondary reaction positive. Roentgenogram taken sixty months later shows two calcified areas in right lung; otherwise negative.

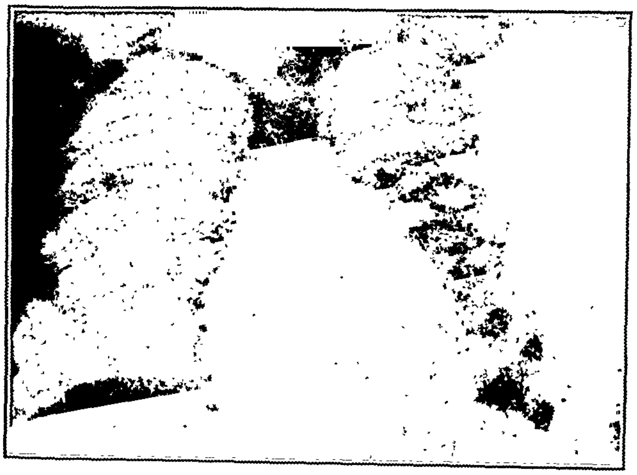


Fig. 2.—Patient 9, T. R., aged 10 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken nineteen months later shows no definite signs of tuberculous disease.

That there are limitations to the tuberculin test must be apparent to those who have had much experience with tuberculous disease. As we have seen, a positive test depends on a bodily reaction occurring as the result of tuberculous infection. The tubercle bacillus is, however, essentially parasitic in nature and, as is the case with all true parasites, has adapted itself to live as nearly as possible in harmony with its host. This is evidenced clinically by the fact that tuberculosis is essentially a chronic disease extending over a prolonged period of time and seldom giving rise to symptoms of acute illness. Anatomically the tubercle gives evidence of but slight irritative action of the bacillus on the body-cells, the characteristic giant-cell formation simulating closely the reaction occurring from the presence of an inert foreign body in the tissues. This being the case, it would not be strange if certain persons were found who would fail to develop a special ferment under the influence of tuberculin, and in these no tuberculin reaction would be obtained even though they themselves were the subjects of tuberculous disease. The mechanism of sensitization is an exceedingly delicate one and the important part played by individuality is well evidenced by the varied behavior of patients to sensitiveness following the therapeutic employment of serums.

In view of the before-mentioned facts it would appear that a method of testing the capability of the individual to produce an antituberculin ferment would materially add to any value which might be attributed to the tuberculin test. When the ophthalmic reaction was first introduced it was noted that a suspicious number of persons who failed to react to the first instillation subsequently reacted to a second instillation in the same eye. This brought to mind the possibility of a local sensitization of the conjunctiva, a point which was first suggested by Rosenau and Anderson. In order to test the possibility of such an occurrence tuberculin was instilled into the left eye of an apparently normal person without any noticeable reaction. Ten days later the left eye was reinstilled, and at the same time the first application was made to the right eye. Within four hours a violent inflammatory condition was apparent in the left eye accompanied by purulent exudate, chemosis of the lids and photophobia. The inflammation, however, was superficial in type and rapidly subsided, the reaction having disappeared completely in twenty-four hours. No reaction was apparent in the right eye as the result of the first instillation. This would seem to establish conclusively the local character of the sensitization. Attempts have been made to explain the secondary reaction on the ground of hypersensitiveness from preexisting healed tuberculous lesions, although it is difficult to explain the absolute local character of the sensitization on this ground. As confirmatory evidence of the truth of their theory, these authors refer to the work of Hamburger, who was unable to sensitize the conjunctiva of the newly-born by repeated instillations. I have tried to sensitize the conjunctiva of twenty-seven apparently normal children under one year of age, with the results given in Table 1. From this table it will be seen that I have obtained positive results in 29.2 per cent of the cases.

---

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

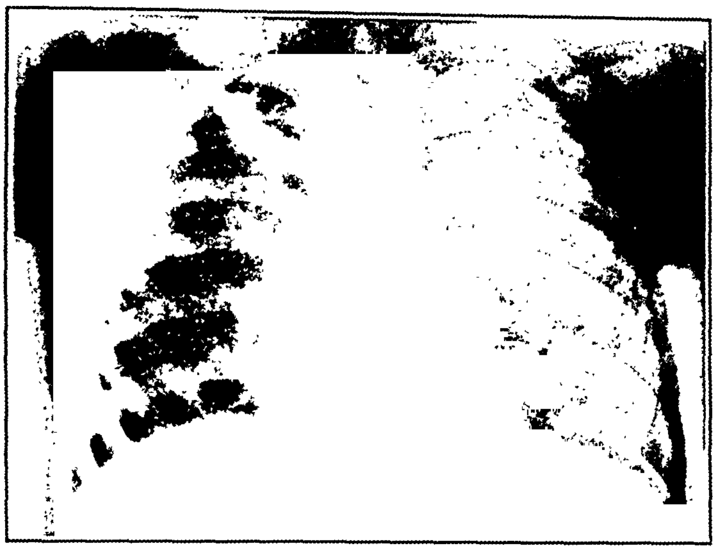


Fig. 3.—Patient 10, W. R., aged 9 years. Eye reaction, negative; secondary reaction negative. Roentgenogram taken nineteen months later shows signs suggestive of tuberculous infiltration at the right apex.

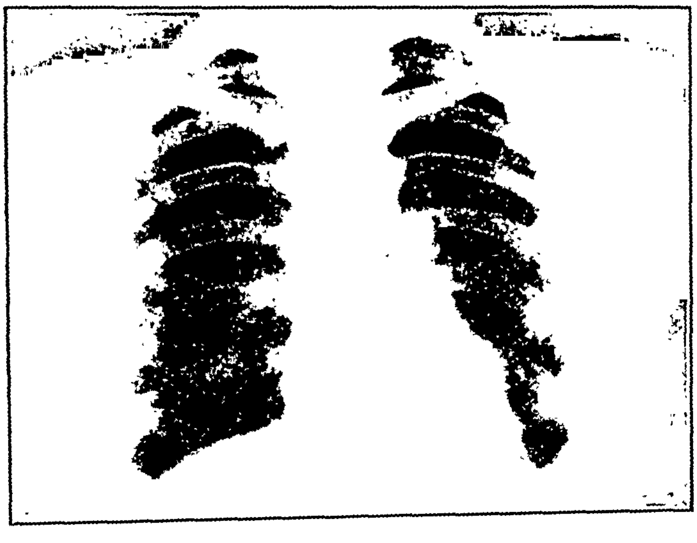


Fig. 4.—Patient 15, P. F., aged 15 years. Eye reaction, negative; secondary reaction, positive Roentgenogram taken twenty-six months later shows no sign of tuberculous disease.

TABLE 1.—RESULTS OBTAINED FROM ATTEMPTS TO SENSITIZE THE CONJUNCTIVA IN TWENTY-SEVEN NORMAL CHILDREN UNDER 1 YEAR OF AGE

Case	Age, Months	Ophthalmo-reaction	Interval, Days	Secondary Reaction
1.	1¼	—	8	+
2.	1½	—	9	—
3.	1	—	8	+
4.	2	—	8	—
5.	2	—	9	—
6.	3	—	9	+
7.	3	—	9	+
8.	3	—	9	—
9.	3½	—	9	—
10.	4	—	8	—
11.	4	—	9	—
12.	5	—	8	—
13.	5	—	8	+
14.	5	—	8	—
15.	5	—	8	+
16.	5	—	9	—
17.	5	—	9	—
18.	7	—	8	—
19.	8	—	8	+
20.	8	—	8	—
21.	8	—	8	—
22.	9	—	8	—
23.	9	—	9	—
24.	9	—	8	—
25.	9	—	8	—
26.	10	—	8	—
27.	11	—	8	+

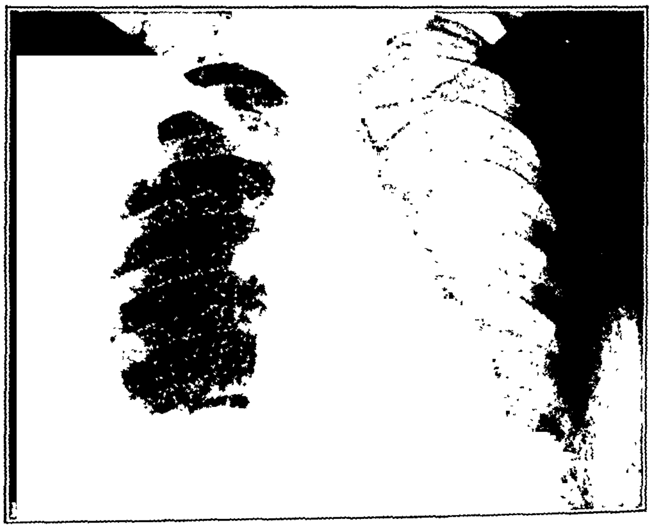


Fig. 5.—Patient 16, S. G., aged 26 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken twenty-six months later shows no signs of tuberculous disease.

The conjunctival tuberculin reaction may be absent in tuberculous persons under the following conditions:

1. In rapidly advancing cases, as, for example, acute miliary tuberculosis, acute tuberculous pneumonia and tuberculous meningitis, as well as in the advanced stage of chronic pulmonary tuberculosis.

2. In early pulmonary tuberculosis in persons who are resistant to, or incapable of sensitization to tuberculin.

3. In persons who are the subject of healed pulmonary lesions of slight extent.

I. ABSENCE OF REACTION IN RAPIDLY ADVANCING CASES

In this class of cases if a primary instillation has been negative, I have never obtained a secondary reaction of sensitization following reinstillation in the same eye. The failure to react in these cases is probably due to an overwhelming of the body with tuberculin and a consequent exhaustion of the antituberculin ferment. In this connection it is interesting to note that seven third-stage patients who three years ago reacted positively to the ophthalmic test and in whom the disease has progressively advanced, fail at present to react to instillation in the same eye, with either a primary or secondary reaction. The failure of the test in this class is, however, of no importance with regard to the question of diagnosis.

II. ABSENCE OF REACTION IN EARLY CASES

That a certain percentage of early cases fail to react to the conjunctival test is well known. Thus Wolff-Eisner obtained but 75 per cent. of reactions in his early cases, whereas Baldwin obtained but 67 per cent. and Hamman and Wolman 60 per cent. In a series of 160 cases of early pulmonary tuberculosis I obtained a positive eye reaction in 72 per cent. From these figures it will be seen that the average percentage of positive reactions occurring in early cases is about 68.6 per cent. As has been previously stated, we have in the repeated ophthalmic test a means of determining the capacity of the individual to react to tuberculin. One would expect that the percentage of positive reactions in early cases would correspond approximately to the percentage in normal persons who can be sensitized to tuberculin locally through previous instillation. That there is a rough approximation is seen by the fact that of 109 apparently normal persons who failed to react to the first instillation, sixty-seven, or 63.8 per cent., developed a secondary reaction of sensitization following reinstillation in the same eye. Whether or not a case of early pulmonary tuberculosis will react to the ophthalmic test is determined by the capability of the individual to produce an antituberculin ferment.

TABLE 2.—RESULTS OBTAINED FROM REINSTILLATION IN THIRTY-FIVE CASES

No.	Patient	Age, Yrs.	Eye Reaction	Secondary Reaction	Months Since Test	Present Condition
1.	B. S.	6	—	—	21	Actively tuberculous
2.	W. F.	8	—	—	45	Actively tuberculous
3.	J. H.	15	—	—	46	No signs
4.	H. D.	27	—	+	45	No signs
5.	M. H.	40	—	+	45	No signs
6.	L. G.	30	—	+	60	No active disease
7.	G. A.	14	—	+	38	No signs
8.	F. K.	14	—	—	24	No signs
9.	T. R.	10	—	—	19	No signs
10.	W. R.	9	—	—	19	Actively tuberculous
11.	C. W.	12	—	—	25	Actively tuberculous
12.	J. G.	12	—	—	24	No signs
13.	M. B.	17	—	—	29	Actively tuberculous
14.	J. D.	46	—	—	26	No signs
15.	P. F.	15	—	+	26	No signs
16.	S. G.	26	—	—	26	No signs
17.	M. K.	14	—	+	4	No signs
18.	A. R.	28	—	+	24	No signs
19.	G. F.	11	—	—	47	Tuberculous
20.	H. W.	8	—	+	1	No active disease
21.	G. G.	10	—	+	8	No signs
22.	M. B.	30	—	+	22	No signs
23.	D. S.	31	—	—	21	Actively tuberculous
24.	J. S.	14	—	—	12	Actively tuberculous
25.	M. B.	33	—	—	7	No signs
26.	R. J.	5	—	—	3	Actively tuberculous
27.	H. N.	21	—	—	3	No signs
28.	H. K.	12	—	—	4	Actively tuberculous
29.	R. K.	10	—	—	18	Actively tuberculous
30.	M. M.	18	—	—	8	Actively tuberculous
31.	M. H.	28	—	+	3	No signs
32.	C. V.	28	—	+	60	No signs
33.	H. F.	28	—	+	60	No signs
34.	A. B.	38	—	+	10	No signs
35.	E. M.	10	—	—	12	Actively tuberculous

With this point in mind, when I have failed to obtain a positive reaction in suspicious cases I have always reinstilled, unless some special contra-indication existed. The results obtained in thirty-five cases, which have been observed over a considerable period of time, are embodied in Table 2.

From a consideration of Table 2 it will be seen that of the thirty-five cases, fourteen gave a definite secondary reaction while failing to give a primary tuberculous reaction. Of these patients, who have been under observation for a period of from one month to five years since the application of the test, none at present show any signs suggestive of tuberculous disease. In addition to physical examination, repeated observations with regard to pulse and temperature and inquiry concerning cough or loss in weight, roentgenograms were taken in eight instances during the past week. In all cases except Cases 6 and 20, the plates appeared normal so far as the lungs are concerned. Case 20 showed a slight mottling at the apex which is suggestive of early tuberculous disease. This patient has been under observation for a relatively short time only, although the diseased process, if existing, is certainly inactive at present. Reference to Case 6 will be made later. Case 34 was particularly instructive.

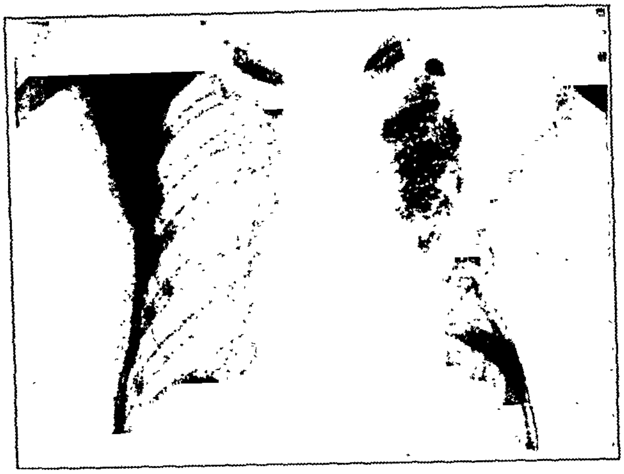


Fig. 6.—Patient 17, M. K., aged 14 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken four months later shows no sign of tuberculous disease. Uniform thickening of pleura on the left side due to the previous attack of empyema.

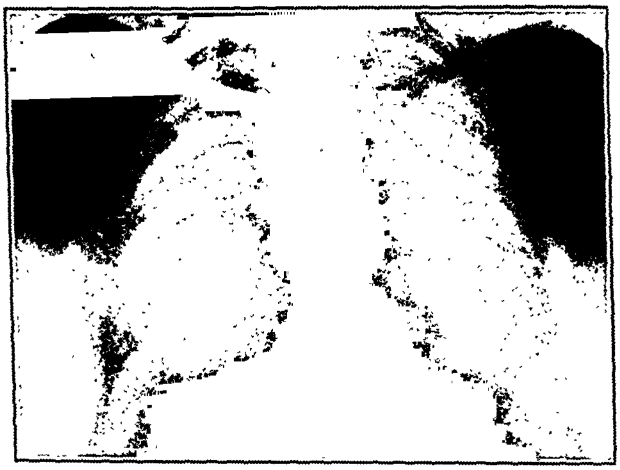


Fig. 7.—Patient 18, A. R., aged 28 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken twenty-four months later shows no sign of tuberculous disease.

CASE 34.—The patient, a woman, aged 38, had been under treatment for supposed pulmonary trouble for one year, during which time she had had constantly an afternoon temperature ranging from 99.5 to 100 F. The physical examination failed to reveal any signs in the lungs commensurate with an active process extending over so long a period. The application of the ophthalmic test was followed by a negative result. Ten days later a marked secondary reaction was obtained. The improbability of the failure of the primary reaction in a person who could be so readily sensitized and who was suffering from supposedly active trouble led to grave doubts with regard to the correctness of the original diagnosis. A slight systolic murmur heard at the aortic area suggested the possibility of an aortitis, while the roentgenogram furnished strong confirmatory evidence with regard to this point. A positive Wassermann was obtained and permanent relief was secured under the employment of mercury and the iodids.

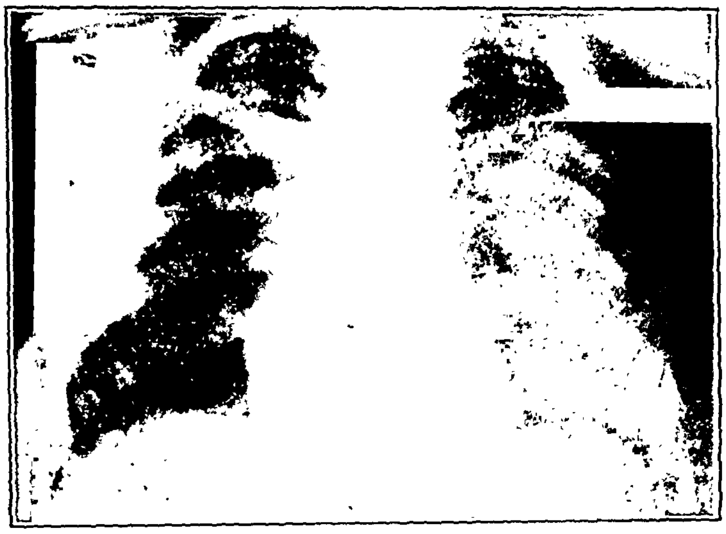


Fig. 8.—Patient 20, H. W., aged 8 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken one month later shows slight mottling at apex suggesting very early trouble. Patient, however, shows no physical signs of active trouble, nor is any elevation of temperature ever present.

In the twenty-one suspicious cases which failed to give either a primary or a secondary reaction thirteen patients have since proved to be actively tuberculous. Case 30 is of particular interest.

Case 30.—The patient, aged 18, had presented herself for examination on account of slight cough, loss in weight and an anemic condition. She occasionally had a rise of temperature to 99.5 F. in the afternoon, although this was by no means constant. Examination of the chest showed a prolonged expiratory murmur at the right apex. No râles were heard at any time. The conjunctival test was negative, as was also the reaction for sensitization applied ten days later. This proved that the patient was incapable of sensitization to tuberculin, and consequently the test was of no value as an aid in diagnosis. The roentgenogram taken at this time gave evidence suggestive of trouble at the right apex. Subsequently the patient was informed by another physician that she was not tuberculous since she failed to show any reaction whatever to the von Pirquet skin test. About two months later the patient suffered an acute bronchitis of a week's duration, during which a few tubercle bacilli were found in one specimen of her sputum. They were not demonstrable before this time, nor have they been present since. The patient is at present in a sanatorium for the treatment of pulmonary trouble.

III. ABSENCE OF REACTION IN PERSONS WITH HEALED LESIONS OF SLIGHT EXTENT

In this connection Case 6 is of particular interest.

Case 6.—A young woman, aged 30, presented herself for information with regard to the most desirable sanatorium which she might enter. On questioning, it was ascertained that she had been pronounced tuberculous on the strength of a positive von Pirquet reaction. Since no signs of active trouble could be found, an ophthalmic test was tried with a negative result. Nine days later a distinct reaction of sensitization was obtained in the same eye. We could not believe that a person who could be so well sensitized could be suffering with active disease and still fail to give a primary reaction. The patient was observed over a period of two months, during which she showed no signs whatever of active trouble and at the end of which she was informed that sanatorium treatment was unnecessary. The roentgenogram taken five years later shows two calcified areas beneath the fourth rib on the right side. The positive von Pirquet obtained may have been accounted for in this manner, and it brings forcibly to our mind the exceeding delicacy of this test.

METHOD OF ADMINISTRATION AND TYPES OF REACTION

I have never seen any ill effects as the result of the application of the conjunctival test. In this respect I am in accord with Baldwin and Hamman and other authorities who have employed it extensively. Hamman states that a second instillation should never be made in the same eye owing to the possibility of serious results and the lack of information obtainable from this source. In order to avoid accidents it is essential that the mode of procedure be thoroughly understood and strictly followed. I have always made use of tuberculin tablets, one of which dissolved in 5 minims of water gives a 1 per cent. solution. The container in which the solution is prepared, as well as the eye-dropper, is sterilized by boiling and the boiled water, still hot, is used for dissolving the tablet, the hot water decreasing the toxicity but not sufficiently to interfere with the reaction.

Two distinct types of reaction may be described. The tuberculous or primary reaction which occurs in connection with the first instillation in tuberculous persons, which we may consider as a reaction of infection, consists of a hyperemia of the mucous membrane of the conjunctiva of the lower lid and the inner canthus, occasionally accompanied by the formation of a slight exudate. The reaction is tardy in making its appearance, extends over a considerable period of time, reaches a moderate degree of severity and subsides slowly. The explanation of this is found in the fact that the tuberculin instilled is acted on by the antituberculin ferment present in the fluids of a tuberculous subject. Since no large amount of ferment is active at any given time, the amount of tuberculin split up must be correspondingly small with the liberation of the toxic cleavage product in small amounts over a considerable period of time.

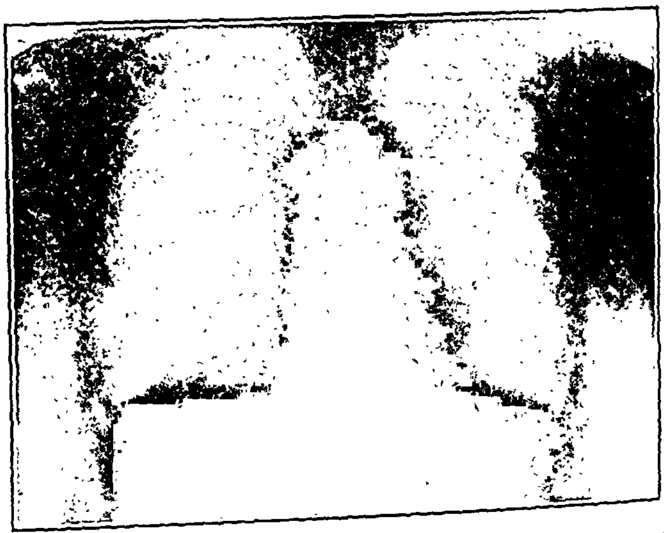


Fig. 9.—Patient 30, M. M., aged 18 years. Eye reaction, negative; secondary reaction, negative. Roentgenogram taken after sensitization test shows tuberculous infiltration at right apex, and also very slight involvement of left apex.

On the other hand, the reaction which occurs as the result of the second instillation in an eye which has failed to respond to a primary test is different in type.

In this instance no reaction follows the first instillation since in the non-tuberculous person no antituberculin ferment is present in the circulating fluid. As a result of the instillation, however, the cells of the conjunctiva develop this ferment which is stored up as a zymogen for future use. A reinstillation at the end of seven days activates this zymogen, the antituberculin ferment attacks the tuberculin instilled and, since present in large amount, liberates the toxic cleavage product at once and in comparatively large amount. For this reason the secondary reaction is characterized by rapid development, high degree of inflammatory reaction and rapid subsidence of symptoms. In applying the sensitization test these facts must be borne in mind. Thus whereas we employ a 1 per cent. solution for the first instillation, we employ a solution of 0.5 per cent. for the second instillation. After the first instillation patients are requested to present themselves for examination on the following day, but if a second instillation has been made the eye is examined at the end of an interval of four hours. At this time in the case of a sensitized reaction a distinct but mild reddening of the conjunctiva will be apparent. The reaction is reported as positive and the eye thoroughly washed with saturated boric acid solution. Under these precautions I have never seen any ill effects, nor, indeed, have I noticed any excessively severe reactions. One would expect that the instillation of stronger solutions of tuberculin into an eye which had previously failed to react to a weak solution might be productive of untoward results. I have always carefully examined the eye before performing the test and have refrained from using it if any inflammatory condition of the conjunctiva was present. It is possible that the phenomena of local sensitization may be demonstrated in other ways. I have of late attempted to apply the same mode of procedure to the nasal mucous membrane, but as yet am unable to report any results.

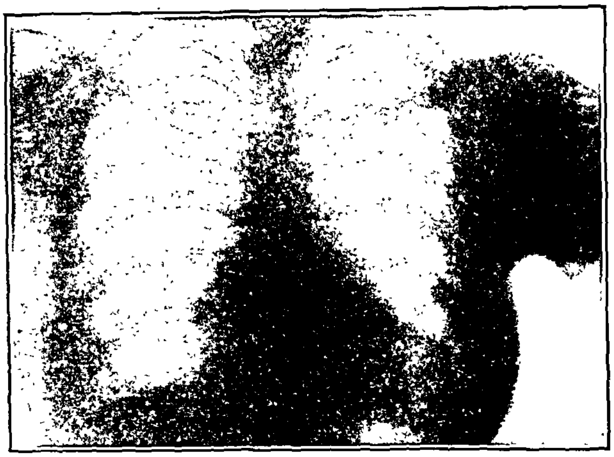


Fig. 10.—Patient 7, G. A., aged 14 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram taken thirty-eight months later shows no sign of tuberculous disease.

CONCLUSIONS

After continued study my conclusions with regard to the value of the ophthalmic reaction in the diagnosis of tuberculous disease which were first advanced in 1909, may be summed up as follows:

1. A positive reaction following the first instillation of tuberculin into the conjunctival sac is strong confirmatory evidence of the existence of tuberculous disease.

2. A negative reaction following the first instillation of tuberculin into the conjunctival sac is of no value in determining the presence or absence of tuberculosis.

3. A secondary reaction obtained in an eye previously unaffected by instillation is strong evidence against the presence of tuberculous disease, at least in an active form.

4. Failure to obtain a secondary reaction in an eye unaffected by previous instillation is of no value in determining the presence or absence of tuberculosis.

Washington Arcade.

ABSTRACT OF DISCUSSION

Dr. Richard C. Cabot, Boston: Despite what Dr. Vaughan has said as to the safety of ophthalmic reaction, the experience of a large number of observers in different countries makes it dangerous to use the reaction. I should advise no one to use it. I have had it used on my own eye, but I would not have it used again.

In a young child the von Pirquet test is important evidence, but it is really of little value in adults; so many adults react because of the presence of latent tuberculosis, which has no practical importance to those persons. Most of us in this room would probably react at this time to the von Pirquet skin test. Sometimes when it is negative it is of value.

Subcutaneous injections of tuberculin are of value when they bring out local reactions at the seat of the disease; for example, they may be of value in showing the nature of the infection in the eye, knee-joint or lymph-nodes.

The Roentgen ray seems to me one of the most important means of evidence we have at present for showing "calcified nodules" in a tuberculous lung, and I use it constantly; but I object to the phrase "the Roentgen ray shows a calcified lung." I have seen calcified lungs demonstrated by a first-class roentgenologist, and when the case came to necropsy there was nothing of the kind there. What we ought to say is, the roentgenogram shows shadows, and nothing but shadows. It never shows pathologic processes. It is for us to interpret what those shadows mean.

Dr. C. L. Minor, Asheville, N. C.: I am extremely glad to hear Dr. Cabot dwell on the unreliability of the von Pirquet test. Patients are being sent away for tuberculosis on the evidence of a positive von Pirquet reaction alone, and yet it has been proved absolutely that after the second year it is valueless, except as a negative test, as Dr. Cabot has pointed out. We cannot emphasize this too strongly and the test should be kept absolutely for use in pediatrics.

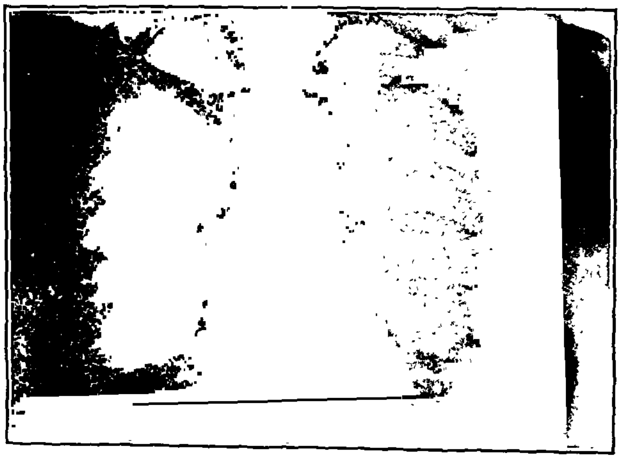


Fig. 11.—Patient 34, A. B., aged 38 years. Eye reaction, negative; secondary reaction, positive. Roentgenogram shows no signs of tuberculosis. Note dilated arch of the aorta. This patient had a specific aortitis.

The Calmette test is undeniably very delicate, but I am not so brave as Dr. Vaughan. I have had one or two violent Calmette reactions that frightened me. It is the danger that patients may lose their eyesight that has held back the use of the Calmette test, delicate as it is. I am well satisfied with the subcutaneous test. If a physician is familiar with

Six months ago I ceased to employ the silk below the knee. In its stead, I have fallen back on a combination of measures that fulfil Lange's aims without drawbacks.

Unfortunately, success in arthrodesis is only a relative matter in children; in its incompleteness, it is sometimes employed.

CAPSULE-TUCKING

More often in cases formerly treated with silk ligament, I use a form of capsule-tucking, to limit the mobility of paralyzed joints. To illustrate, in equinus: I make elliptic skin incisions transverse to the limb over the ankle-joint, retract the tendons and split the ankle-joint capsule midway between its attachments to tibia and astragalus with a full horizontal incision; the two lips of capsule are seized with hemostats and are overlapped sufficiently to correct the toe-drop and sutured with mattress-sutures of very heavy chromicized catgut. Heavy scar tissue forms about the site of these sutures, binding the bones still more firmly together.

In conjunction with joint capsule-tucking, the older measures are used; the dead or weak tendons are shortened; the superficial fascia is overlapped and tucked with mattress-sutures, and the skin brought together, minus the skin-flap removed between the original incision. Almost always some form of tendon work comes in for its due share of consideration (Figs. 1, 2 and 3).

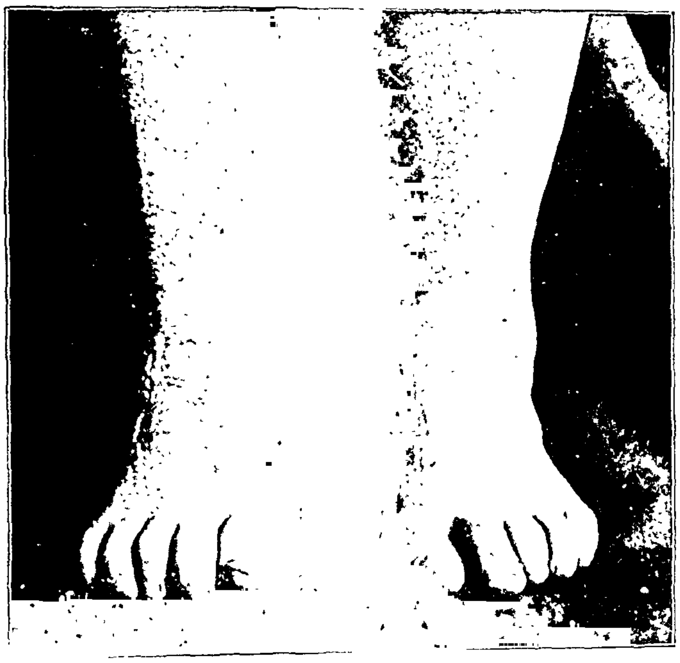


Fig. 3.—Results of joint capsule-tucking in heavy adult, after failure with the silk ligament. Tendon work also used. Considerable motion above right angle. Extreme foot-flexion is shown.

It is only fair to state that on the Pacific coast, life even in childhood is most strenuous. The climate conduces to an active outdoor life the year round. The children in the lower grammar grades are led into football, baseball and track athletics against rival school teams. Boy scouts and fond fathers trail the youngsters over mountains and through difficult forests. Again, the principal industries in our two northwestern states have to do with forestry and fishing—two lines of work that try to the utmost the physical endurance, brawn and limb. Consequently, our patients on discharge fall back to their accustomed activities. A procedure surviving the rack and tear of our section stands the endurance test.

It is my belief that the introduction of a foreign body, such as a strand of silk, into the foot, is not a practical or justifiable measure. The principle underlying Lange's method can more successfully be carried out in treating the leg palsies by modifying the natural structures entering into the joints, gaining fixation thereby, than by the introduction of foreign bodies.

1103 Fidelity Building.

ABSTRACT OF DISCUSSION

Dr. Edwin W. Ryerson, Chicago: Dr. Rich has emphasized a point that is extremely important; that is, that it is inadvisable to leave the knots where the shoes will press against them. You should simply make the loop on the bone, and make the knot away up on the ankle, at the side on which the hole is bored through the tibia. In one or two tendon transplantations in which I left knots in the foot, I had trouble. In a good many other cases, in which I had made knots of large-sized silk, it is only fair to state that they gave no trouble. A piece of silk such as I used, when it becomes covered with fibrous tissue, as I have seen it do in many cases, cannot be any longer, I believe, legitimately considered a foreign body. It is filled with the normal constituents of the human frame and fails to act as a foreign body in so large a proportion of the cases in which I operate that it would not be ordinarily termed a foreign body. I have done a large number of operations of this sort and have seen only three cases in which the silk ligament had to be taken out.

Dr. R. O. Meisenbach, Buffalo, N. Y.: I should like to ask Dr. Rich whether or not he uses paraffined silk.

Dr. Edward A. Rich, Tacoma, Wash.: The question of the use of the silk ligament is not, as yet, a settled one. Whether we shall ultimately be inserting heavy silk strands into the neighborhood of joints is in my opinion doubtful. The point I wish to make emphasizes the fact that in the West, under Western conditions—which may be different from conditions elsewhere—the silk does not give satisfaction in the lower extremity.

In the earlier work with silk I used the plain, twisted silk, twice sterilized; however, in the last two-thirds of the cases I have turned to the paraffined silk and believe that it is preferable.

Dr. Meisenbach: Why did you change?

Dr. Rich: We changed from the plain to the paraffined silk because Lange advised it, and because the plain silk had been causing too much seepage from the periosteal and bony attachments. Most of our failures have been attributable to one of two causes; first from the wick-like drainage of the plain silk, and second from external irritation.

CLINICAL AND LABORATORY SALVARSAN RELAPSES AND THEIR REMEDY

A SEROLOGIC STUDY OF SIX HUNDRED FIFTY-ONE CASES COVERING NINE HUNDRED FIFTY-TWO INTRAVENOUS ADMINISTRATIONS AND THREE THOUSAND THREE HUNDRED FOUR WASSERMANN EXAMINATIONS *

M. L. HEIDINGSFELD, Ph.B., M.D.
Professor of Dermatology, Ohio-Miami Medical College of the University of Cincinnati; Dermatologist of the Cincinnati General Hospital
CINCINNATI

Sufficient time has already elapsed and the number of cases has been amply large to permit a retrospective analysis of the salvarsan treatment of syphilis and an estimation of its true and relative worth. Despite the fact that it fails, from both a clinical and laboratory point of view, to effect a permanent cure here and there, it is safe to assume at present that it has clearly demonstrated itself to be the sovereign remedy for the succes-

---

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

ful treatment of the various stages of syphilis and has definitely acquired an indispensable place in this important field of therapy. It is no longer necessary to determine whether it is a useful or a useless remedy, whether its results are efficacious or futile, its effects good or bad, or whether it should or should not be administered in all well-defined cases of active syphilis. There is scarcely a person of even moderate experience who will not concede, without bias or prejudice, its great positive worth in these and many other directions. The salvarsan problem of to-day is no longer a question of whether it should or should not be administered, but (1) what its untoward results are and how they can be successfully obviated, (2) to what degree its curative properties can and should be carried, (3) to what extent its action must be supplemented by other agents and (4) what plan of treatment subserves its purpose best.

Salvarsan results can be conveniently grouped into two large classes, namely, cases of syphilis in which clinical symptoms have remained in abeyance for a year or more, with persistent negative Wassermanns, and those which have shown relapses of a clinical or laboratory type or have failed to proceed to an apparent recovery from either a clinical or laboratory point of view. The conversion of the latter to the former is the question of chief absorbing interest at present, and the successful therapeusis of syphilis will not be satisfactorily elucidated until this goal is reached.

METHOD OF ADMINISTRATION AND TREATMENT

The attempt to establish fixed rules for the successful treatment of syphilis from a salvarsan or any other point of view has ever been and probably will ever remain an exceedingly difficult undertaking. There is so much variation in technical ideas and disparity in method of treatment, control and individual results that it will require a long period of careful observation, investigation and study before a fair degree of unanimity of opinion can be successfully attained. There are, however, a few fundamental principles in reference to salvarsan which have received general, but not their fully deserved universal, recognition. The generally practiced intravenous administration of salvarsan is almost universally conceded to be the most efficient method of neosalvarsan treatment. It can be performed, under proper technical precautions, without untoward incident and danger, in ambulatory practice and in threatening complications of somewhat unfavorable character. It is of utmost importance that every step of the operation be attended with painstaking surgical asepsis. All vessels and paraphernalia should be surgically clean and freshly sterilized. It is essential that the water used for cleansing and dissolving purposes should be freshly distilled and surgically clean. Distilled water from druggists and mineral-supply houses must be questionable and unsafe if allowed to stand longer than twenty-four hours. Ehrlich and others have clearly established that many of the untoward results from salvarsan and neosalvarsan in the past have been the result of improper technic and, most notably, the use of impure water.

DOSAGE

Opinion remains divided, with no hope of an early adjustment, regarding salvarsan dosage in syphilis. For the most part, one of two methods is employed, large and oft-repeated doses during the early stages of treatment, in order to obtain theoretically a *dosis sterilisans magna*, or relatively smaller or less frequently repeated dosage. The former attains more generally in Europe, the latter possibly more in this country. It is needless to state that the early ideals of Ehrlich regarding a *dosis sterilisans magna* have not been attained in the vast majority of cases. It is possibly true that a single administration often effects an apparent cure, most notably in early initial lesions, before general infection has become established or of long-standing character. During my earliest experience with salvarsan I was inclined toward large and oft-repeated dosage. Not noting any material improvement or favorable change from a clinical and laboratory point of view in the refractory cases, even when salvarsan was administered in inordinate oft-repeated dosage, I promptly pursued a more conservative policy in regard to salvarsan administration in all cases. Partly from observations personally gleaned abroad and partly at the personal solicitation of Ehrlich, I underwent a change of sentiment for the time being and pushed the treatment beyond the clinical and Wassermann requirements in order to do too much rather than too little and to play the game on the safe side. My results conformed to the impressions obtained from previous experience, namely, that clinical and laboratory relapses were not thereby more favorably circumvented and that persistently positive Wassermanns could not be materially changed by such a procedure. If one or two salvarsan administrations failed to effect the desired result, a dozen closely repeated would not change the situation, even if they were otherwise well tolerated. I found it necessary in this class of cases to resort to adjuvants of a different character, and these form the basis for the presentation of this paper. Cases of laboratory or clinical relapse which were once favorably influenced by salvarsan treatment were usually promptly benefited when treatment was again repeated. Aside from this particular class, however, frequently repeated salvarsan possessed, in and of itself, little significance. Salvarsan, however, repeated after months of intermission, has often effected the desired result.

THE WASSERMANN REACTION

I wish merely to reiterate what has been expressed on former occasions relative to the importance and significance of a careful Wassermann complement-fixation control over all cases of syphilis. To treat a case of syphilis without this aid is virtually attempting to sail a vessel without the directing aid of compass and rudder—mere guesswork. Without its aid I should lack assurance whether my case was progressing favorably or unfavorably, as to whether or not some other therapeutic agent should be called into play, whether the prognosis augured favorably or unfavorably, whether early marriage should be encouraged or discouraged. A careful and properly made complement-fixation test gives all this wealth of information, without which the treatment of the case must remain more or less empirical and tentative in character. I am firmly of the opinion that no case of syphilis can be intelligently and satisfactorily treated without some such form of control. When personally supervised, the Wassermann possesses the greatest degree of scientific interest, and the progress of the case under intelligent interpretation can usually be measured with almost mathematical exactness. The Wassermann occupies, in my personal estimation, a place second to none, not even salvarsan, in the successful treatment of syphilis.

SEROLOGIC ANALYSIS

In 651 cases 3304 Wassermann examinations were made, and salvarsan was administered 952 times from Dec. 25, 1910, to June 1, 1913. The administrations were made in ambulatory private practice, during the consultation hour, and not a single administration was attended by any incident of untoward character. The initial dosage was almost uniformly 0.6 gm. of salvarsan and 0.9 or 0.6 gm. of neosalvarsan; if neosalvarsan was repeated within from thirty to sixty days, 0.3 gm. was usually administered, unless persistent lesions or an unchanged and strongly positive Wassermann indicated otherwise. A Wassermann examination was made prior to the initial administration and was repeated every thirty days, until the blood became negative. When the fixation test remained negative two successive times, the examination was repeated in sixty days; if then negative, in ninety days, and then at intervals of six, nine and twelve months, according to the special indications of the case. It is needless to state that the complement-fixation examinations could not be systematically pursued in all the cases. Some of the patients absented themselves voluntarily; others, owing to foreign residence, enforced absence, delinquency, etc., involuntarily. The vast majority, however, reported regularly and the serologic study could be more carefully, consistently and intelligently carried on than is permissible in clinical and hospital practice. In only 209 cases of the 651 treated was there a record of but one Wassermann examination, and a fair percentage of these were cases that had received salvarsan for a period of less than ninety days. Deducting the 209 cases which were observed less than ninety days, or could not be intelligently followed for the reason of only one Wassermann examination, in 339 out of a total of 442 cases, or 77 per cent., the patients proceeded to recovery from a combined clinical and laboratory point of view, as a result of one or more administration of salvarsan. No other adjuvant was employed, although 276 cases of somewhat long standing received some form of antisyphilitic treatment prior to the administration of salvarsan. The majority of these, however, showed clinical relapses or positive Wassermanns at the time salvarsan was first administered.

Of the 103 cases, or 23 per cent., of salvarsan failures, nine received no additional attention. Of the remaining 94 cases, 13 proceeded to clinical and laboratory recovery with the aid of mercurials and 23 with the aid of atoxyl and sodium cacodylate; 21 have been observed comparatively too short a time to pass definite judgment. Twenty-two cases have apparently failed, from at least a laboratory point of view, with all methods of treatment. Summarized, in 50 per cent. of salvarsan failures the cases have proceeded to complete clinical and laboratory recovery when the treatment was supplemented by other measures.

In 371 cases, for the most part old and long-standing infections, some form of previous mercurial treatment has been received. Of these, 230 cases proceeded to recovery and 95 could not be intelligently followed. In other words, 83.5 per cent. proceeded to absolute recovery from a clinical and laboratory point of view. This is of striking interest, as it shows that more cases (83 per cent.) proceeded to salvarsan recovery when previously treated with mercury, than those cases (61 per cent.) which had received no previous mercurial treatment. This fact must possess great clinical significance. It apparently indicates that previous mercurial treatment favorably influences syphilis for salvarsan treatment. It may be, however, that the percentage of recovery is higher in the cases previously treated with mercury for two apparent reasons: (1) A large percentage of these cases were of rather long standing, with weak positive, negative or almost negative Wassermanns. Some possessed a dubious history, enveloped in greater obscurity by a too early administered mercurial treatment. The cases not previously treated with mercurials were, almost without exception, comparatively recent infections personally observed in which present-day methods of greater accuracy—the dark-field microscope and the Wassermann complement-fixation test—eliminated sources of possible error. Furthermore, the previously treated cases were of longer standing, and this, in and of itself, is a favorable feature, inasmuch as a large number of cases gradually proceed toward spontaneous recovery from both clinical and laboratory point of view, without the aid of other measures, in due course of time.

It is evident from this that salvarsan failed to effect a satisfactory result, from a clinical and a complement-fixation point of view, in 23 per cent. of the cases treated, and salvarsan aided by other measures in about 12 per cent. I do not wish to imply that these cases have been abject failures. On the contrary, I am firmly of the opinion that the administration of salvarsan has been attended by marked benefit and material improvement in all cases. Some of these "failures" were in cases which presented ravages of a severe and malignant type; cases which were rapidly proceeding to an unfavorable termination in spite of the free and intelligent use of mercurials, iodids and general old-line treatment. The failure has been largely, almost exclusively, of laboratory character and, from an objective clinical point of view, they would have readily passed muster as cures. These patients as a class showed no clinical manifestations, and their general state of health and well-being was, for the greater part, excellent. The persistent strong positive Wassermann, however, gave evidence that these patients were not cured, and that if further treatment were definitely intermitted, they would eventually present clinical manifestations of a relapsing type.

Hospital and dispensary practice bears abundant evidence that clinical as well as laboratory relapses occur in insufficiently treated cases. The treatment of syphilis cannot be considered eminently successful unless the patient is thoroughly insured against relapse. It must be thoroughly eradicated, if the patient is to remain pleased and satisfied with the attention, and the physician is to do full justice and credit to himself. In syphilis a half-cure is virtually no cure. False assurance can do harm, not only to the patient, but also to his environments. To effect a cure here and there requires no particular skill and attainment and should bring no credit to the physician who essays it. Nature doubtless effects that much unassisted. It is some credit to improve on Nature and to increase her percentage of favorable results. It is a matter of extreme discredit, however, not to recognize the uncured patients, and not to labor for their ultimate recovery, if such possibilities are within our province and are not accepted. The cases of persistent positive Wassermanns, in spite of prolonged intelligent attention, are doubtless the ones which present the greatest menace. These are usually the cases in which the disease is constantly making slow and insidious ravage without external evidence or manifestation. These are the cases which ultimately show the irreparable and distressing invasions on the cerebral, spinal and circulatory systems. It is therefore the 23 per cent. of salvarsan failures with which the profession must now be seriously engrossed, for it is unpardonable to allow one in every four patients with syphilis to incur this unnecessary risk, if there are satisfactory and intelligent methods of circumventing it.

For the past year or more I have endeavored to seek some satisfactory method for the conversion of the 23 per cent. Wassermann positives to negatives, in cases which have successfully resisted three or more salvarsan administrations. In the beginning I employed massive intravenous administrations of mercury oxycyanid and mercury bichlorid, from 100 to 200 gm. of a 1:1,000 solution. The results, from the point of view of complement-fixation, were encouraging, but gastro-intestinal disturbances and localized obliterating phlebitis discouraged my effort in this particular direction. Since then I have employed a 10 per cent. solution of sodium cacodylate and atoxyl, with more encouraging results. Sodium cacodylate has proved itself to be the more efficacious and reliable of the two. Twenty-two cases of a total of fifty which could be intelligently followed proceeded from Wassermann positive to Wassermann negative with deep muscular injections of sodium cacodylate. Many of the cases were not favorably influenced from a Wassermann point of view, and a few retrograded from weak positive to strong positive. It is difficult to conjecture whether this retrogressive change was incident to the cacodylate or to the natural causes of syphilis. The injections were made twice weekly for from thirty to sixty days. If the Wassermann was negative in thirty days, it was administered once weekly. The cacodylate injections were never continued longer than sixty days and not repeated under intervals of two or three months. They were well tolerated in all cases. Salvarsan was repeated every three or four months in all persistently positive cases; a number of persistently positive cases which successfully resisted salvarsan, cacodylate and other measures for several years have eventually become weak positive or Wassermann negative. I am encouraged to believe that all cases, with intelligent, persistent attention, give fair promise of eventually becoming Wassermann negative. Only five cases in my experience have relapsed to a Wassermann positive after being negative for one full year. It is probably needless to add that general tonic treatment was not omitted and that dietary and other regimen was properly imposed. Alcohol was absolutely interdicted in all cases until the Wassermann remained absolutely negative for a period of ninety days; the cases in which this was not observed and those in which the patients were previously addicted to the inordinate use of alcohol fared worse as a class. Relatively few patients showed appreciable material improvement when the treatment was supplemented by inunctions or deep muscular mercurial injections.

This paper is based entirely on my own impressions, gleaned from the careful study of cases under my personal observation and control in private practice. It has been my endeavor to exclude carefully any impression from the experience of others to confrères, which may have reached me directly or indirectly through the literature. I have been actuated to do this chiefly for the reason that the literature on the subject is much at variance with itself. It is an easy matter to find confirmation or rejection, as the case may be, for any statement for or against the use of salvarsan. For these evident reasons the literature has not been consulted and all references have been carefully excluded.

I wish to reiterate what I have already stated on former occasions, namely, that the Wassermann is the oracle and mentor of syphilis diagnosis and therapeusis. The diagnosis and treatment of syphilis without Wassermann control and other specialized aid must be unscientific and, in a large degree, unsatisfactory in character. Salvarsan, though not an unfailing remedy, is by far the most effective present-day agent which we possess for the treatment of syphilis. It effects an apparent clinical and laboratory cure in about 77 per cent. of the cases treated. A large proportion of the remaining 23 per cent. of cases, with the aid of sodium cacodylate and other measures give every promise of proceeding to a negative Wassermann and absolute clinical cure in due course of time.

19 West Seventh Street.

AN EXPERIMENTAL STUDY OF THE ANTISEPTIC VALUE IN THE URINE OF THE INTERNAL USE OF HEXAMETHYLENAMIN *

FRANK HINMAN, A.B., M.D.
Assistant Resident Surgeon, Johns Hopkins Hospital
BALTIMORE

Since 1895, when Nicolaier[1] first demonstrated formaldehyd in the urine as a decomposition product of hexamethylenamin, the use of hexamethylenamin as a urinary antiseptic has been almost universal. Churchman[2] indicated in 1906 its antiseptic value with the conclusion that its effects in the urine are expressed in an inhibition of bacterial development rather than in a destruction of bacterial life. Nothing more definite appeared until last year, when Burnam[3] upset our ideas somewhat by stating that on the customary doses of from 5 to 10 grains three times a day not more than two patients out of ten would show any decomposition of the drug into formaldehyd at all, while only 60 per cent. would show it on a dosage of from 20 to 30 grains every four hours. These findings were quickly confirmed by L'Esperance[4] and Jenness,[5] the former finding 52 per cent. formaldehyd-containing urines in 250 cases, and the latter only 47.2 per cent. in 200 cases. Smith[6] published observations on fifty cases, in only one of which did he fail to find formaldehyd.

No attempt was made by any of these investigators to determine the quantity of formaldehyd put out in a series of cases, nor have the factors influencing the conversion of the drug into formaldehyd been definitely established, although it has been known for some time that hexamethylenamin itself has no antiseptic power, and that it is only through its being converted into formaldehyd that any antiseptic benefit can be derived from its use.

The present study attempts to indicate the quantity of formaldehyd, and, therefore, its true antiseptic value,

---

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* The part of this paper relating to chemical tests and the method of quantitative estimation was read before the Association of Genito-Urinary Surgeons, May 7, 1913, at Washington, D. C., and will be published in full together with the case reports and findings of this study in the Transactions of that Society.

[1] Nicolaier: Deutsch. med. Wchnschr., 1895, xxi, 541; Deutsch. Arch. f. klin. Med., 1904, lxxxi, 181.

[2] Churchman, J. W.: Johns Hopkins Hosp. Rep., 1906, xiii, 189.

[3] Burnam, Curtis F.: An Experimental Investigation of the Value of Hexamethylenamin and Allied Compounds, Arch. Int. Med., October, 1912, p. 324; abstr., The Journal A. M. A., Nov. 9, 1912, p. 1743.

[4] L'Esperance: Boston Med. and Surg. Jour., Oct. 24, 1912.

[5] Jenness, B. F.: Burnam's Test for Formaldehyd in the Urine, A Study of Two Hundred Cases, The Journal A. M. A., March 1, 1913, p. 662.

[6] Smith, G. G.: Boston Med. and Surg. Jour., May 15, 1913.

in the urine of patients receiving 15 grains of hexamethylenamin three times a day after meals, and to determine the important factors influencing this quantitative output.

The results for the convenience of better consideration may be divided into the following parts:

1. The germicidal and antiseptic values of formaldehyd.
2. Chemical tests for formaldehyd in the urine, with the report of a simple method of quantitative estimation by a modification of the Rimini test.
3. The antiseptic value to the urinary system of hexamethylenamin by mouth.
4. A consideration of the important factors influencing this value.
5. Comparative values of some of the allied hexamethylenamin compounds.

THE GERMICIDAL AND ANTISEPTIC VALUES OF FORMALDEHYD

The bacteriologic study of formaldehyd divides itself naturally into that showing germicidal power, and into that showing antiseptic power. By germicidal is now generally understood a complete death of the organism; by antiseptic, an inhibition of growth for a variable time while exposed to the action of the drug, but with the ability to resume activity on being removed to a favorable environment.

A review of the work of other investigators, of which there have been a great many, and my own experiments, indicate that formaldehyd is a weak and a relatively slow germicide, but that even in high dilutions it exerts a powerful inhibitory influence to bacterial development. This power of inhibition varies with the different organisms studied. The staphylococci, and the typhoid and colon bacilli are the most resistant, the *Bacillus pyocyaneus* and streptococci are next, while the proteus group, the diphtheria and pseudodiphtheria bacilli, *B. subtilis* and *B. dysenteriae* are less resistant to its action. A dilution of formaldehyd of about 1:16,000 or stronger is totally inhibitory to the growth of *B. typhosus* for twenty-four hours, and a dilution of 1:6,000 is completely germicidal at the end of that time. A dilution of 1:30,000 definitely restrains the growth of the organism, but a dilution of 1:40,000 has no apparent effect, although, if the results are shown by means of plating and a systematic bacterial count, there will be a slight diminution in the count as compared to a control in broth.

In order that formaldehyd in the urine may be of clinical value, therefore, the urine should contain a strength of at least 1:30,000. Twice this strength is much more efficacious, as it would then be completely inhibitory to a majority of the organisms, and the best effect will be procured with a germicidal strength, or a solution of about 1:6,000.

TESTS FOR FORMALDEHYD AND METHOD OF QUANTITATIVE ESTIMATION

The marked instability of the two drugs, particularly with reference to acids and alkalies, should be given due consideration in applying tests for their detection, and the difficulty in a study of this kind, when an estimation of formaldehyd alone is desired, is greatly increased by the associated presence of the closely allied and unstable product, hexamethylenamin. It is not possible to use strong acids because the result is vitiated by a conversion of this substance. In addition the ease with which formaldehyd will combine with some inorganic and organic substances is to be remembered, and in the urine there are no doubt changes taking place that we know nothing about. Formaldehyd forms a soluble salt with uric acid, which suggested the use of hexamethylenamin in cases of urinary calculi, and, as the urine contains many similar substances, it is possible that in some cases very little formaldehyd is present because of the formation of certain by-products which may possibly give our color tests, and which may or may not be antiseptic.

Of the qualitative tests (Hehner's,[7] Shiff's,[8] Neuberg's,[9] Jorrison's,[10] Lebbin's,[11] the Amidol,[12] and Rimini's,[13] only the last three were found to be applicable to urine examinations, in that they were not interfered with by the associated presence of hexamethylenamin. Hehner's test was found of considerable negative value in showing the absence of both hexamethylenamin and formaldehyd. All of the tests are of value only qualitatively, and give no indication of the quantity of formaldehyd present, the main object in view.

An experimental study of some of the best considered quantitative methods of estimating formaldehyd was most discouraging, for reasons such as the instability and volatility of formaldehyd, the very small amount present and the associated presence of hexamethylenamin. No known method was found applicable for quantitative determination in the urine.

Quantitative Method of Estimation: Rimini[13] in 1898 published a phenylhydrazin-nitroprussid test as particularly applicable to foodstuffs, and it has since been found to be very reliable, provided certain precautions are observed. Anderson[14] reported it as one of the most reliable for formaldehyd, and in 1912 Burnam slightly modified the percentage dilution of the test drugs and applied it to urine examinations.

In the early experimental work with this test it was seen that there existed a definite relationship between the dilution of formaldehyd and that of one of the reagents, phenylhydrazin hydrochlorid; the more formaldehyd present, the less phenylhydrazin needed to obtain the reaction, and vice versa. This relationship gives a fairly uniform limit of reaction for the several formaldehyd dilutions and is the basis of the quantitative estimations to follow. The estimation is made by finding the weakest dilution of the test drugs that will give the characteristic blue-green-yellow reaction, and it was found convenient to represent the result in the form of a fraction, the numerator representing the dilution of phenylhydrazin, and the denominator that of the nitroprussid. Thus a 100/20 test indicates that this is the limit of reaction for that particular specimen, and by comparing this with the results on known dilutions of formaldehyd it will be seen to correspond to the limit of reaction of a known 1:40,000 solution. Therefore the specimen with this test has formaldehyd in dilution of about 1:40,000. Following this out for the other tests we obtain: 10/20 reaction equals a 1:60,000; 20/20, a 1:50,000; 100/20, a 1:40,000; 600/20, a 1:30,000; 800/20, a 1:20,000; 1,000/20, a 1:10,000, and 1,000/100, about a 1:7,000 dilution of formaldehyd.

---

[7] Hehner: Abstr., Lond. Chem. Soc., 1896, A ii, 583.
[8] Shiff: In Allen: Commercial Organic Chemistry, 1908.
[9] Neuberg: Berl. d. d. chem. Gesell., xxxii, 1962.
[10] Jorrison: Chem.-Ztg., 1897, p. 290.
[11] Lebbin: Ztschr. f. anal. Chem., 1897, xxxvi, 18.
[12] Allen: Commercial Organic Chemistry, 1908.
[13] Rimini: Chem. Zentralbl., 1898, i, 1152; abstr., Jour. Soc. Chem. Indust., 1898, p. 697.
[14] Anderson: Bull. 39 Hyg. Lab., U. S. P. H. and M.-H. S.

THE ANTISEPTIC VALUE TO THE URINARY SYSTEM OF HEXAMETHYLENAMIN BY MOUTH

The patients, with five exceptions, were not normal cases. Thirty-two were old men with enlarged prostates, of which six were malignant. Fifteen patients had surgical disease of the kidney, six, disease of the bladder, twenty-four were gynecologic cases, three, medical, seventeen were in the department of general surgery and fourteen had some minor genito-urinary disease.

Significance of Disease of the Kidney: The kidneys of thirty-three of the 116 patients were definitely diseased, as indicated by the phenolsulphonephthalein test of Rowntree and Geraghty.[15] A number of these gave extremely poor phenolsulphonephthalein tests, three showing only a trace in one hour with a markedly delayed appearance time, in one not appearing for fifty-five minutes, in another for sixty-two. The findings in the forty-four cases in which phenolsulphonephthalein tests were made do not indicate that disease of the kidney exerts any influence whatsoever on the formaldehyd content in the urine.

Antiseptic Value of Formaldehyd at the Level of the Kidney: It has been generally believed that hexamethylenamin is converted into formaldehyd at the level of the kidneys. To be of value formaldehyd must be in the urine in the kidney in amounts of 1:30,000, or greater. To determine in what amounts formaldehyd is present the ureters of patients on hexamethylenamin were catheterized and the specimens from each kidney were examined immediately, and these findings compared to those on the urine voided just before the cystoscopy. Three of the bladder urines failed to show formaldehyd, whereas of the twenty-three catheterized urines, only five showed formaldehyd, and these five had only a 1 to 60,000 formaldehyd content. The eighteen negative urines all gave a positive Hehner's test, showing that hexamethylenamin was being excreted. That more formaldehyd is not formed is explained by the lack of time necessary for formaldehyd conversion in an acid medium. The hexamethylenamin as it is excreted from an alkaline blood is not allowed to remain at the level of the kidney long enough to give good conversion, and even with a high acidity and a high concentration the amount of formaldehyd at this level is seldom great enough to furnish antisepsis.

Antiseptic Value of Formaldehyd in the Bladder: Only four of the 116 cases failed to show formaldehyd. In each of these cases only one specimen was examined. The remaining 112 cases were positive for formaldehyd at some one examination. They may be conveniently grouped according to the highest test given at any time, and the examinations, which give a more just indication of values, may also be grouped according to the test reactions.

Only eight cases, or about 7 per cent., revealed formaldehyd in germicidal strength, and five of these patients had been fed on acid sodium phosphate, so that in only about 2 per cent. of the usual cases did the urine give the 1:7,000 test at any one time; 25 per cent. had formaldehyd in amounts to give complete bacterial inhibition, and 55 per cent. of the cases gave at some one examination a 1:30,000 test or better; 44 per cent. of the cases, although formaldehyd was present, at no time had this formaldehyd in sufficient amount to furnish antiseptic benefit.

Of the 318 examinations 36 per cent. were definitely antiseptic, and of these only 17 per cent. showed formaldehyd in strength to give complete bacteriostasis, and only 5 per cent. were germicidal; 64 per cent. had less than 1:30,000, and possessed no antiseptic value. (These results, owing to the fact that it was found impossible to examine all of the specimens immediately after being obtained, are no doubt high, but there is doubtless a slight error due to the instability of the test drugs, which would tend to correct the error due to an increase of formaldehyd on standing.)

FACTORS INFLUENCING FORMALDEHYD CONTENT

Several factors influence the amount of formaldehyd present in the urine of patients receiving hexamethylenamin by mouth. They are of two kinds, those that influence hexamethylenamin excretion, and those that influence hexamethylenamin conversion. All factors are more or less interdependent.

Influence of Urinary Acidity: In order definitely to determine the significance of the acidity of the urine to the amount of formaldehyd present in it, 10 c.c. of each specimen were titrated against tenth-normal sodium hydroxid, using phenolphthalein as indicator. The acidity varied from 0.1 to 7.9 c.c., the average of the 231 examinations being 3.1 c.c. Twenty-nine of the urines had an acidity of less than 1 c.c., and of these, thirteen were negative for formaldehyd and twelve others barely gave a test. There were two negative urines with an acidity between 1 and 2 c.c., whereas of the urines with an acidity above 2 c.c. all showed formaldehyd, and, with the exception of six cases, all showed formaldehyd in 1:40,000 dilution or better. There were 109 urines that gave 1:30,000 or better, and of these, 100 had an acidity of 2 c.c. or better, only nine an acidity between 1 and 2 c.c., and none with an acidity below 1 c.c. On the other hand, there were ninety-five urines that gave a test below 1:30,000 formaldehyd, and of these ninety-five, fifty-seven, or almost two-thirds, had an acidity below 2 c.c. This would indicate that a formaldehyd content of antiseptic value cannot be expected with a urinary acidity below 2 c.c. of tenth-normal sodium hydroxid.

The importance of urinary acidity to formaldehyd content in the urine is further demonstrated by the following observations:

1. The urine of a patient on hexamethylenamin, if acid, will after standing give a higher test for formaldehyd than when fresh. For example, 400 c.c. of urine voided at 11:30 was negative for formaldehyd, but at 3 p. m. the same urine gave a 1:30,000 test. On the other hand, a faintly-acid urine after standing five hours showed no increase in formaldehyd content, but when *this urine* was made acid by adding acid sodium phosphate, a 1:20,000 test was given in two hours.

This time element is an important factor to be considered in making tests. Every urine should be examined immediately after being voided in order to judge fairly its antiseptic properties while in the bladder. And this factor, together with that of urinary acidity, will explain the fact that a patient on forced water will show a low formaldehyd concentration as compared to a patient on the same dose but without polyuria. In the former case there is neither sufficient time nor acidity for the conversion of the hexamethylenamin in the bladder. When the acidity is high, however, a half hour seems time enough for good formaldehyd conversion, provided there is good concentration. In order to obtain the best results in cases of cystitis from hexamethylenamin therapy, therefore, the fluids should be partially restricted and the bladder emptied as infrequently as possible.

---

[15] Rowntree, L. G., and Geraghty, J. T.: Phthalein Test, Arch. Int. Med., March, 1912, 284; abstr., The Journal A. M. A., April 6, 1912, p. 1038.

2. If hexamethylenamin is added to an acid urine it will be quickly converted into formaldehyd. On the other hand, hexamethylenamin added to a neutral or faintly acid urine shows none of this conversion.

3. The addition of acid sodium phosphate to the urine of a patient on hexamethylenamin negative for formaldehyd will convert the hexamethylenamin present. The addition of almost any acid will convert the hexamethylenamin.

4. Increasing or decreasing the acidity of the urine of a patient through his diet causes a corresponding change in the formaldehyd content of the urine.

Feeding milk of lime causes a diminution in urinary acidity, and in those cases in which it was used a complete disappearance of formaldehyd from the urine occurred.

Feeding acid sodium phosphate, boric acid, benzoic acid or salicylic acid will increase urinary acidity in cases in which it is low, and in these cases very definitely increases the amount of formaldehyd in the urine. The effect of any one of these acid-producing drugs will wear off after a time owing to body tolerance. When this occurs for any one it is possible to again raise acidity by substituting one of the other drugs in its place, and by thus alternating the use of the drugs acidity may be maintained for some time, in some cases, but not satisfactorily in all.

It is not well to give these drugs with the hexamethylenamin, since, as already shown, they tend to convert this, and might do so to such an extent in the stomach as to produce gastric irritation, as well as a loss for subsequent conversion in the urine.

Influence of Gastric Acidity: Hexamethylenamin is converted in the acid contents of the stomach. The amount of this conversion depends on the degree of gastric acidity, the amount of the drug exposed to its action, and the duration of this exposure. In one case in which 30 c.c. of contents were removed half an hour after giving hexamethylenamin, free formaldehyd was present in the proportion of 1:20,000, and after standing three hours the same contents showed a formaldehyd strength of 1:7,000.

In order to determine the significance of this formaldehyd thus formed in the stomach, formaldehyd solutions (6 ounces of a 1:3,000 or a 1:5,000 every three hours) were given by mouth to patients not on hexamethylenamin, and the urines carefully examined for both formaldehyd and for hexamethylenamin. These urines were all uniformly negative, even with the most delicate tests, showing that the formaldehyd was not being excreted either as formaldehyd or as hexamethylenamin. The blood of these patients was also examined with Hehner's, the Amidol and Rimini's tests, in each case with complete negative findings, indicating that formaldehyd was not present in the circulation nor had it been converted into hexamethylenamin in the alkaline medium either of the intestines or of the blood.

Chemists have been able to synthesize the simpler sugars from formaldehyd. Emil Fischer[16] and his pupils have formed most of the hexoses, and more recently Grube[17] showed through perfusion experiments on tortoise livers that formaldehyd acted as a glycogen former. This is the possible fate of these small amounts of formaldehyd when given by mouth.

These observations indicate that gastric acidity is a factor of influence in hexamethylenamin therapy, since the formaldehyd in the stomach is not excreted in the urine as formaldehyd or as hexamethylenamin. In cases of hyperacidity or poor gastric motility there is sufficient conversion in the stomach to considerably lower the formaldehyd content in the urine.

Feeding Salol-Coated Pills: In order to avoid the effects of gastric acidity hexamethylenamin may be given in salol-coated pills. Given in this way it will be largely excreted in the urine. The results of its use, however, did not show any great advantage through an increase in formaldehyd content over the usual manner of administration, and it takes from one to two hours longer for the drug to be detected in the urine. When given in this way in cases of hyperacidity there was a slight increase in formaldehyd content, but the difference was not great enough to recommend the method for routine use. Nevertheless, in cases of gastric irritability this mode of administration is applicable.

Influence of the Size of the Dose: In a few cases the routine of 15 grains three times a day was varied for purposes of comparison. The amount of hexamethylenamin excreted, the other factors being good, appears to be proportional to the amount ingested, but a large dose is not effective unless accompanied with a urinary acidity greater than 2 c.c. of tenth-normal sodium hydroxid. The value of smaller doses than 15 grains is very questionable. The drug can be given for months in fairly large doses with no untoward effects.

Influence of Curve of Excretion: Formaldehyd will begin to appear in an acid urine in sufficient quantities to be detected after the ingestion of an average dose (15 grains) in from twenty to thirty minutes, and will have disappeared in from eight to sixteen hours. The height of excretion is reached in from two to four hours and is maintained for four hours or longer. An eight-hour interval of administration will give good results in routine use, although a higher concentration is obtained with a more frequent medication.

SUMMARY OF THE FACTORS INFLUENCING THE FORMALDEHYD CONTENT IN THE URINE

These factors may be divided into two groups:

I. Those relating to hexamethylenamin excretion:

1. The larger the dose the higher will be the percentage concentration of the drug on excretion. Large doses may be given with no bad effects in the majority of cases, and small doses are useless in most cases.

2. The interval of administration should not be longer than eight hours, and shorter intervals will give a more continued maximum effect.

3. The character of the changes that occur in an acid stomach content forms an appreciable factor in certain cases of hyperacidity or of stasis. The amount of hexamethylenamin broken up in the stomach is that much loss for subsequent conversion in the urine.

II. Those relating to the conversion of hexamethylenamin:

1. The degree of urinary acidity is the most important factor, and should be greater than 2 c.c. of tenth-normal sodium hydroxid. It may be increased or maintained in some cases by feeding certain acid-producing drugs, of which acid sodium phosphate is the best. For practical purposes it is necessary only to know the acidity

---

[16] Fischer: In Hammerston-Mandel: Physiologic Chemistry, 1911, p. 205.

[17] Grube, K.: Arch. f. d. ges. Physiol. (Pflüger's), abstr., Hammerston-Mandel: Physiologic Chemistry, 1911.

of the urine in order to know the antiseptic value of formaldehyd in that case, provided the patient is getting large doses at regular intervals and has no gastric irritability or polyuria.

2. The duration of exposure to the influence of this acidity is of importance, so much so that on account of it the drug in medium-sized doses is of no use in kidney infections. It becomes of particular importance in cases of cystitis or of polyuria in which the patients void so frequently that time is not allowed for conversion of the hexamethylenamin in the bladder in amounts to be of antiseptic value. In estimating the antiseptic value of a urine it should always be fresh and not allowed to stand before testing.

3. The dilution of the drug on excretion largely influences the amount of it that is subsequently converted, as the higher its concentration the more readily will it be broken down. A polyuria, through the effect of dilution, will largely offset the advantage of large doses.

A COMPARATIVE STUDY OF THE ANTISEPTIC VALUES OF SOME OF THE ALLIED HEXAMETHYLENAMIN COMPOUND

Hexamethylenamin is dispensed under many proprietary names, such as urotropin, formin, aminoform, cystogen, etc. Certain of these are less irritant, but none of them liberate more formaldehyd than the pure drug, and in most cases not so much. In addition to these there are a number of other proprietary preparations for which an action superior to hexamethylenamin is claimed through the added benefit of the salt to which it is combined, such as helmitol,[18] hexal,[19] saliformin,[20] Myrmalyd,[21] Borovertin, Hetralin, etc. Of these only the first four were available for study, and these did not give as good a formaldehyd content as does hexamethylenamin.

CONCLUSIONS

1. The conversion of hexamethylenamin into formaldehyd is a simple chemical process which will readily occur in an acid medium but will not occur in an alkaline medium.

2. The amount of excretion of hexamethylenamin in the urine is influenced by the size of the dose, by the frequency of administration and by the character of the changes that occur in the acid contents of the stomach.

3. The amount of the subsequent conversion of this hexamethylenamin in the urine is dependent on the degree of urinary acidity, on the duration of exposure to the influence of this acidity and on the percentage concentration of the drug in it; and in order to give formaldehyd conversion in antiseptic amounts the urinary acidity should be greater than 2 c.c. of tenth-normal sodium hydroxid for 10 c.c. of urine.

4. A low acidity may be temporarily increased by feeding certain acid-producing drugs, and this increase in acidity may often be maintained by giving these drugs alternately.

5. Disease of the kidney has no influence whatsoever on the formaldehyd content in the urine.

6. At the level of the kidneys hexamethylenamin in doses of 15 grains three times a day has no antiseptic value.

7. Formaldehyd is present in the bladder urine in some amount in practically every case receiving 15 grains of hexamethylenamin by mouth three times a day, but this dosage is too small a routine from which to expect a reasonable antiseptic benefit in every case.

8. The allied hexamethylenamin compounds do not give greater antiseptic values than pure hexamethylenamin.

I wish to express my gratitude to Dr. Hugh H. Young for the privilege of this study, and to thank him and the several residents of the Johns Hopkins Hospital, Drs. Sladen, Heuer, Gibbes and Vest, for the clinical material.

---

[18] Hexamethylenamin with anhydro-methylen-citric acid.
[19] Hexamethylenamin with sulphosalicylic acid.
[20] Hexamethylenamin with salicylic acid.
[21] Hexamethylenamin with sodium formate.

THE PSEUDODIPHTHERIA ORGANISM IN THE URINARY TRACT *

WILLIAM WARREN TOWNSEND, M.D.
Professor Genito-Urinary Surgery, University of Vermont, College of Medicine
RUTLAND, VT.

The first of the following cases reported was one in which the symptoms of cystitis were most severe and resembled tuberculous cystitis. The bacteriologic examination and animal inoculation showed no tubercle bacilli, but did show the pseudodiphtheria bacillus in pure culture. Text-books on genito-urinary subjects do no more than mention the pseudodiphtheria bacillus as "an organism occasionally found in the urinary tract" and attach no importance to it pathologically. In reviewing the literature I find a case reported by Rosenow, in which the pseudodiphtheria organism was proved to be the etiologic factor. This organism is frequently associated with the gonococcus in chronic gonorrheas. I offer these facts as a reason for presenting the following case histories, summary of literature and report on the bacteriologic examination of eighty specimens of apparently normal urine.

CASE 1.—In January, 1911, a man, aged 21, unmarried, a farm hand, consulted me for dysuria and frequency of urination and remarked that the condition had been one of progressive intensity, beginning in 1909. The onset symptom occurred on a hot June afternoon while he was at work in the hay-field. He had been perspiring profusely and had been drinking a large quantity of water to quench his thirst. During urination he was seized with a severe pain along the course of the urethra which lasted several minutes and which quieted down in the intervals between urinations only to recur at each micturition. As the symptoms were continuous, and as he had had sexual intercourse a month previously, he thought that perhaps he had a gonorrhea and consulted the local village physician who, without making any physical or urinary examination, quite agreed with him in his diagnosis and gave him medicine to take. He continued to use it for several weeks without benefit to symptoms and then consulted other physicians and took a variety of medicines prescribed by them; acting on the advice of friends, he also took medicines that had helped them when they were in a "similar condition."

It is interesting to note that during the period of treatment, from June, 1909, to the time of consulting me in January, 1911, he at no time had received a urethral irrigation, nor had he been given a hand injection to use.

Examination.—When the patient first consulted me he was well nourished and all of his organs, not associated with the subjective symptoms, were normal; the family history was negative and no tuberculous predisposition could be elicited.

The urinary examination of a twenty-four-hour specimen showed a foul-smelling, alkaline urine, with many ropy, mucous sloughs resembling diphtheritic membrane. The spe-

---

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

cific gravity was 1.014; there were a trace of albumin and an excess of phosphates; otherwise the urine was chemically normal; microscopically some pus and blood were found, but no histologic kidney elements or casts.

The external genitalia were negative, likewise the prostate and vesicles. The urethra was of normal caliber, and other than for a marked spasmodic contraction of the compressor the catheter passed easily and showed a residium of 12 c.c. Urethroscopic examination of the anterior urethra was negative; the posterior urethra in the prostatic portion was much congested and bled freely when touched. The verumontanum was hypertrophied and granular in appearance. The cystoscopic picture was that of a contracted bladder holding only 70 c.c. A diffuse inflammation of the mucosa existed and a highly congested trigon, which also bled when touched. Surrounding the right ureteral opening there was a mass of bullous edema. The left ureteral opening was normal in appearance, and attached to the mucosa posterior to the right ureteral orifice and extending up on the posterior wall was a membrane 2.5 by 3.25 cm. having the appearance of a diphtheritic membrane. It could not be loosened with the tip of the ureteral catheter and a prolonged attempt to loosen it was prevented by the vesical spasm which expelled the distending medium. Any further attempt at catheterizing the ureters was obviated by the increasing intolerance of the bladder.

Diagnosis and Treatment.—As a result of the clinical findings at this cystoscopy, a tentative clinical diagnosis of right renal tuberculosis was made, and the urine from the bladder was sent to the laboratory for bacteriologic examination and animal inoculation. The patient was put on general urinary antiseptics, and local treatment to the bladder was instituted with a view to future cystoscopy and renal investigation.

Laboratory Findings.—A smear examination of the centrifugalized urine brought the report of an organism "identical in morphology with the Klebs-Loeffler bacillus." Cultivation was made and the organism was found to be present in pure culture. I thought that there might have been some contamination due to faulty technic while obtaining the specimen, or in the laboratory, and obtained another specimen and divided it equally, sending one-half to the Vermont State Laboratory and the other half to Dr. H. J. Perry of the Harvard Bacteriological Laboratory with instructions to "study the bacteriology of the specimen." The work was carried on in each laboratory absolutely independently and both reported in substance as follows:

The bacillus was isolated from the urine and was exceedingly variable in size and shape, but in a general way resembled members of the diphtheria group, though averaging thicker, less delicate in shape, with fewer polar bodies and with more breaking up of the bacilli into shorter organisms than is usual with the true diphtheria bacillus. In certain classes, forms resembling in a general way Wesbrook's Type A were seen. From the morphologic point of view it seemed that the bacillus was of the diphtheria group, but not the true diphtheria bacillus, although resembling it in certain ways. When stained with Loeffler's methylene blue it was impossible to bring out the polar bodies, as can usually be done in the pure diphtheria bacillus. On blood-serum the separate colonies resembled closely the diphtheria bacillus. Cultures were made in various sugar-broths, dextrose, saccharose, lactose, dextrin, etc., and the presence of increased acidity, especially in dextrose broth, could not be determined. The negative character of the reactions with the sugar showed that the bacillus might be the pseudodiphtheria bacillus. Guinea-pigs were inoculated with large doses of pure culture in broth and nothing followed the inoculation; the animals were not even made sick by the inoculation.

Cultures were taken from the patient's nasopharynx and from his blood with negative results.

As a result of the continued bladder irrigations and urinary antiseptics the bladder became more tolerant to instrumentation. The physical and bacteriologic properties of the urine, however, and the subjective symptoms, namely, dysuria and frequency, continued. A second cystoscopy and ureteral catheterization were done and the bladder was found to be less contracted and a general betterment of the pathologic appearance was noted. The kidneys were catheterized; the segregated urine was sent to the laboratory and a cultural bacteriologic examination showed that the "specimen from the right kidney contained organisms identical in morphology with the Klebs-Loeffler bacillus. Urine from the left kidney was sterile."

Further Treatment and Course.—Through the courtesy of Dr. Robert H. Herbst of Chicago I received sufficient vaccine to treat my patient and I continued its use most systematically without apparent benefit. This vaccine was prepared as the result of a study into the etiology of twenty-six cases of chancroid made by Dr. Herbst, who reported these cases at the September, 1911, meeting of the American Urological Society held in Chicago. Herbst[1] found that the pseudodiphtheria bacillus resembles very closely the Ducrey bacillus; he found it present in thirteen of the twenty-six cases studied and as a result of treatment by the vaccine prepared he asserts that he cured his patients. I also used an autogenous vaccine without apparent benefit. At no time during my observation of the case did I note any constitutional symptoms, namely, high temperature, etc.

The spasmodic constriction of the membranous urethra noted at the first examination manifested itself at every subsequent examination or treatment of the bladder; overdilatation and local treatment rectified this condition. At about this time the subjective symptoms and urine began to clear up.

The bladder had been irrigated with the various silver salts and boric acid and, as no mercurial solution had been used, it was tried in the form of mercuric cyanid in a 1:1,000 solution. Irrigations were made every day and an attempt at bladder distention was made at each treatment. The urine was sent for bacteriologic examination regularly and while the pseudodiphtheria bacillus was the predominating organism, the *Staphylococcus albus* was noted at each culture as a contamination. As it did not appear in the early urinary cultures, its presence during the stage of improvement was interesting. At the time of writing (Jan. 31, 1912), the staphylococcus is the only organism that can be cultivated, and the patient is cured of the subjective symptoms. The urine is much less puriform.

I consider the finding of the pseudodiphtheria bacillus from the right kidney at the time of the second cystoscopy due to contamination of the eye of the ureter catheter during its passage through the bladder and mass of bullous edema.

In order to appreciate the similarity of this case to that reported by Rosenow,[2] it will be necessary to abstract his article in some detail.

Case 2.—Rosenow's patient was a woman, unmarried, typesetter, aged 23. After removal of the tubes and ovaries, on account of intense nervousness, painful menstruation and vaginal discharge, she was six months later taken with a chill, followed by painful, frequent and bloody micturition, tenesmus, fever and prostration.

Examination and Course.—A cystoscopic examination by Dr. J. Clarence Webster showed a large irregularly ulcerated area, approximately 4 by 5 cm., on the posterior wall of the bladder behind the trigon; the base of some of the ulcers was irregular and grayish, with necrotic patches, while others were clean. Two days after cystoscopy the patient was suffering excruciating pain in the bladder and back, associated with a constant desire to urinate, extreme tenesmus and burning. The twenty-four-hour specimen of urine, 720 c.c., was turbid, but not bloody, and alkaline; specific gravity was 1.015. It contained a large amount of albumin, a few leukocytes and epithelial cells, but no casts. Stained specimens of sediment showed Gram-negative, moderately mobile bacilli

---

[1] Herbst, Robert H., and Gatewood, L. C.: Experience with a Vaccine in the Treatment of Chancroids, The Journal A. M. A., Jan. 20, 1912, p. 188.

[2] Rosenow, E. C.: Immunologic Observations in Ulcerative Cystitis Caused by Pseudodiphtheria Bacillus, Jour. Infec. Dis., 1909, vi. 296.

> and a fair number of Gram-positive bacilli resembling the diphtheria group. These bacilli were always more numerous in a twenty-four-hour specimen or in a single specimen which had stood for a period. The temperature during an exacerbation of the bladder symptoms went up to 100 F.; otherwise it was normal.
>
> Cultures from scrapings from the margin of the ulcerated area as well as from the vagina yielded the diphtheria-like bacillus in predominating numbers; only a few colon bacilli and staphylococcus colonies developed. Occasional specimens of urine for eight months longer showed a gradual diminution in the number of leukocytes and albumin and a total disappearance of the Gram-positive bacilli. Improvement in the patient's general and local condition was also marked.
>
> *Diagnosis.*—Inoculation experiments in guinea-pigs showed that the bacillus was one of moderate virulence and that diphtheria antitoxin failed to protect against the organism, as has been the case with other virulent pseudodiphtheria bacilli. Inasmuch as the growth on various mediums resembled closely that of diphtheria bacilli, especially after they had been cultivated for a time, and for the reason that antitoxin failed to protect, it would seem justifiable to regard the bacillus as a so-called virulent pseudodiphtheria bacillus.
>
> *Conclusions.*—Rosenow summarizes his conclusions as follows:
>
> The diphtheritic ulceration of the bladder in this case was caused by the pseudodiphtheria bacillus for the following reasons:
>
> 1. The constant presence of the bacillus in the urine and its predominance in the smears from the scrapings.
> 2. The specific and peculiar behavior of the blood toward this bacillus, especially after the injection of dead bacteria, with apparent benefit for the patient.
> 3. The high agglutinating power of the serum on this bacillus and absence of such power on the colon bacillus.

The pseudodiphtheria organism is frequently found in the cultures made from the discharge of gonorrheics.

Through the courtesy of E. L. Keyes, Jr., I have had the opportunity of looking over the data obtained by his bacteriologist in the examination of eighty-six cases of urethritis. The pseudo-organism was found nineteen times, twice pure and in the other instances associated with the gonococcus and the staphylococcus. Dr. Keyes also reports to me another case "involving the anterior urethra almost exclusively. The only organism found was the pseudodiphtheria bacillus, and this was clumped in such masses about the small shreds in the urine that it seemed quite likely that this was the infecting organism."

A. P. Ohlmacher[3] reports that while engaged in the task of recovering and cultivating the gonococcus he encountered the pseudodiphtheria bacillus as an inhabitant of the pus from acute gonorrheal arthritis. The association of this bacillus and the gonococcus was noted on several occasions and from different individuals, and it was one of the features rendering more difficult the recovery of the gonococcus in pure culture. From these observations he concluded that their companionship was not an accident, but was fraught with importance, especially from the point of view of therapeutic bacterial immunization in gonorrhea.

In order to determine the frequency with which the organism inhabited the genito-urinary tract, I obtained the apparently normal urine of eighty prisoners in a penitentiary with which I have a visiting association. The external genitalia were thoroughly sterilized, and the urine was voided into a sterile container and then poured into a sterilized glass tube and centrifugalized. The sediment thus obtained was planted in Loeffler's blood-serum and incubated. Ten of the eighty specimens taken, or 12 per cent., showed a growth of pseudodiphtheria bacilli and in every intsance staphylococci. The ten prisoners from whom the positive urines were obtained were further examined with a view of locating the part of the urinary tract inhabited by the organism. Omitting the technic, it may suffice to say that cultures were made from the anterior and posterior urethra and from the posterior urethra following massage of the prostate. In all the instances the organism was cultured from the anterior urethra and once from the sediment of the urine catheterized from the left kidney.

In a personal communication, Dr. John T. Geraghty of Baltimore informed me that in the study of the bacteriology of prostatitis in connection with the preparation of an article[4] on that subject the pseudodiphtheria organism was not cultivated. This is in accord with my own findings, as it will be noted that I was unable to obtain it from the posterior urethra either before or after massage of the prostate. In the ten instances in which it was found, six acknowledged having had gonorrhea, and two gave a history of having had diphtheria.

Hermann Pfeiffer,[5] writing in 1903, states that he examined fifteen normal and twelve gonorrheal urethras and could, after the study of these few cases, detect a certain constancy of events; in the first series, namely, the fifteen normal urethras, he succeeded eleven times and, in the second series, six times in finding organisms "belonging to the diphtheria group," not only on the cover-glass, but also in great numbers in culture-tubes. The fact that these bacteria are so constantly found on the urethral mucous membrane, is, he adds, so far as his literary knowledge of the subject goes, new.

Sven Wall[6] reports having made pure cultures of the pseudodiphtheria bacillus from the kidneys of cows that had suffered from pyelonephritis.

Many cases are reported of true diphtheria of the renal pelvis[7] and of the bladder, and in going over the literature it is noted that while there is a marked similarity in the clinical findings of the reviewed reports, still in all of the cases there were distinct constitutional symptoms, and the bacteriologic examination was positive.

The clinical symptoms of cystitis in which the pseudodiphtheria bacillus seems to be the causative factor closely resemble the cases of necrosis of the bladder collected and studied by O'Neil.[8] In so far as I could learn, however, in none of the reports collected by him, or in his own cases, was the bacteriology studied. Trauma in each instance was ascribed as the primary cause, with infection as the contributing factor.

Aufrecht[9] in 1882 made experiments in which he sealed the meatus of a large, strong, male rabbit, and *in toto* obstructed urination four times for twenty-four hours. On section of the bladder at necropsy it was covered with purulent masses, thickened and infiltrated, and Aufrecht states that there was nothing to distinguish it from diphtheritic areas in the mucous membrane of the human throat. He is of the opinion that it adds weight to the view of Billroth, Tiezel, etc., that in animal organisms there may be microbes that under proper conditions—for example, nutritional disturbance of the bladder wall caused by trauma—may produce deleterious results both by their multiplication and by their change of form.

---

[3] Ohlmacher, A. P.: Pseudodiphtheria Bacillus Infections and their Response to Therapeutic Inoculations, Jour. Med. Research, 1908, xiv, 109.

[4] Young, Geraghty and Stevens: Prostatitis, Johns Hopkins Hosp. Rep., 1906, p. 271.

[5] Pfeiffer, Hermann: Wien. klin. Wchnschr., 1903, p. 762.

[6] Wall, Sven: Centralbl. f. Bakteriol., 1909-1910, Part 1, xiv, 8.

[7] Krause, F.: Primäre Diphtherie eines Nierenbeckens durch Operation geheilt (renal pelvis), Deutsch. med. Wchnschr., 1904, xxx, 1060. Menetrier, P.: Bull. Soc. anat. de Paris, 1896, xi, 59. Escherich: Aetiologie und Pathogenese der epidemischen Diphterie, Vienna, 1894, p. 227. Suldi, S.: Nefrite difterica primitiva, Arch. de path., Naples, 1886, iv, 19. Levi, M. R.: Sperimentale, Firenzi, 1885, lvi, 485. Jacobi: Med. Rec., New York, 1882, xxi, 301. Shrady, S. F.: Med. Rec., New York, 1884, xxv, 79.

[8] O'Neil, R. F.: Necrosis of the Bladder with Exfoliation, Surg., Gynec. and Obst., May, 1910.

[9] Aufrecht: Centralbl. f. d. med. Wissensch., 1882, xx, 881.

Realizing the number of instances in which the organism is found in the normal urethra and urine, it would not be beyond reason to consider at least the possibility that the pseudodiphtheria organism may play an important rôle in the cases reported by O'Neil, especially in those described as membranous cystitis, which are pathologically different from the cases of necrosis.

In order to appreciate the plausibility, at least, of the theory that the pseudodiphtheria bacillus is the cause of some forms of cystitis, it is necessary to determine the lesions produced by the bacillus in other parts of the body and to study the present status of this organism in the bacteriologic nomenclature.

In glancing over the vast literature on this subject, I am struck and confused with the various contradictory statements by bacteriologists of great repute. No organism has been the topic of so much discussion and dispute as the so-called pseudodiphtheria bacillus, and it seems as if the last word in the controversy between unicists and dualists has not yet been spoken.

Loeffler in April, 1887, cultured from a diphtheritic membrane two different bacilli, one of which was pathogenic for guinea-pigs, the other harmless. About the same time Von Hofmann-Wellenhof found the same bacillus and called it the pseudodiphtheria bacillus. Their better growth on agar and their shortness and thickness were sufficient grounds for him and Loeffler to separate this organism from the true diphtheria bacillus. Roux and Yersin, however, in 1890, demonstrated that the virulent bacillus of diphtheria may be artificially made avirulent and take on all the characteristics of the pseudodiphtheria bacillus. The pseudobacillus to them is only an attenuated form of the diphtheria bacillus, and investigators like Morel, Martin, C. Frankel, Behring, Ritter and Koplik, shared their opinion.

L. Martin distinguished three varieties of the diphtheria bacillus, a long, a short and a medium type. According to him and his followers, the short type is identical with the pseudobacillus of the German bacteriologists. This view is held by Chatin and Lesieur,[10] Roussel and Job,[11] Schanz,[12] and most emphatically defended in a recent original publication by Laurent[13] of Stockholm, who states that his observations have fully convinced him that the view originally advocated by Roux and Yersin is the only correct one. Zarniko observed that the diphtheria bacillus caused an active production of acid in broth, and the pseudo, faintly acid or alkaline, and Escherich made the statement that the acid producers were always virulent and the non-acid producers avirulent. Exceptions to this rule were numerous enough to invalidate this as an absolute test.

Bacteriologists gradually began to admit that cultural peculiarities, morphology, presence of Neisser granules, chemical activity or virulence for animals and the like all failed to draw a line between the true and the false diphtheria bacillus, and that the only hope for a sure method of differentiation lay in the application of specific serums to neutralize specific toxins. Spronck[14] of Utrecht, experimenting with the short bacilli of the French authors, found two strains without any virulence, but two other strains injected under the skin of guinea-pigs produced edema, loss of weight, lack of appetite and other constitutional symptoms. As antidiphtheritic serum did not prevent these symptoms, he concluded that there exists in the anginas a pseudodiphtheria bacillus, pathogenic for the guinea-pig, until now not known, or mistaken for the true diphtheria bacillus. "This bacillus corresponds absolutely with the small bacillus of Martin."

Alice Hamilton,[15] in this country, followed Spronck's method, found twenty-six different pseudodiphtheria bacilli and divided them into three types and grouped them as follows:

Group 1, non-pathogenic to guinea-pigs.

Group 2, pathogenic to man, "which should be further studied."

Group 3, pathogenic to guinea-pigs.

Two varieties, Hamilton[16] writes, are found frequently in suppurative processes, especially in the pus of postscarlatinal otitis media. In this disease, she says, they are found so frequently as to render it probable that they play an important part in its causation.

Howard reports a fatal case of ulcerative endocarditis in which a pure culture of the diphtheria-like organism existed which did not prove fatal to guinea-pigs.

Rudinger[17] reported a series of cases of gangrenous tonsillitis and pharyngitis in which the pseudodiphtheria bacillus was found in pure culture.

As Pennington[18] says:

> We meet recent evidence that morphologically and clinically the most satisfactory pseudo forms have a decided pathogenicity for guinea-pigs, and from clinical evidence for human beings; hence the harmlessness of these germs cannot be accepted unconditionally, any more than a certain virulence can be attached invariably to a diphtheria bacillus which agrees with some arbitrary requirement laid down by bacteriologists.

From the genito-urinary clinician's point of view, it matters little whether the organism found in the case presented here must be labeled a form of the Klebs-Loeffler bacillus, or a variety of another organism *sui generis*, the all-important fact for us as genito-urinary clinicians is that this organism is or may become a destroyer of health in the human economy, and that in the genito-urinary tract its significance is of greater moment than has hitherto been acknowledged.

Schiötz[19] of Copenhagen and Musgrave[20] of Manila have called attention to the fact that the Klebs-Loeffler bacillus can be driven out by the staphylococcus, and the Danish physician inoculated diphtheria patients with pure cultures of staphylococci with curative results.

It is suggestive, to say the least, that in my case also during the acuteness of the symptoms the pseudobacillus was found alone, and when the staphylococcus made its appearance as a contamination of the frequent treatments the symptoms subsided, and now (Feb. 27, 1912) the urine is free from pseudodiphtheria bacilli, and staphylococci alone are present.

---

[10] Chatin and Lesieur: Rev. d'hyg., 1900, xxii, 509.

[11] Roussel and Job: Rev. de méd., 1905, xxv.

[12] Schanz: Deutsch. med. Wchnschr., 1898, xxxiii, 522.

[13] Laurent: Das Virulenz-Problem der pathogenem Bakterien, Stockholm, 1910.

[14] Spronck: Semaine méd., xvi, 317

[15] Hamilton, Alice: Toxic Action of Scarlatinal and Pneumonic Serums on Paramecia, Jour. Infect. Dis., March 19, 1904, p. 690.

[16] Hamilton, Alice: Pseudodiphtheria Bacilli as Cause of Suppurative Otitis, Especially Postscarlatinal, Jour. Infect. Dis., June 15, 1907, p. 326.

[17] Rudinger: Tr. Chicago Path. Soc., 1904.

[18] Pennington, M. E.: Virulence of Diphtheria Organisms in Throats of Well Schoolchildren and Diphtheric Convalescents, Jour Infect. Dis., January, 1907, iv, 49.

[19] Schiötz, A.: Cure of Chronic Diphtheria Bacillus Carriers. Ugesk. f. Laeger, Dec. 9, 1909; abstr., THE JOURNAL A. M. A Jan. 29, 1910, p. 422.

[20] Musgrave: New York Med. Jour., Dec. 23, 1911, p. 1282.

In the case reported to me by Keyes also, in which the pseudobacillus was "clumped about the shreds," it was alone. In the other cases of chronic urethritis in which the bacteriology was studied it was associated with the gonococcus and the staphylococcus.

CONCLUSION

As a result of my study and observation, it is my firm conviction that under the proper conditions a pseudodiphtheria bacillus in the genito-urinary tract can become a pathogenic organism; that it is more common as an etiologic factor than is appreciated by the textbooks, as evidenced in the numerous cases of chronic urethritis in which it is found, in the cases reported by Rosenow and in the one studied by me.

My findings endorse fully Brown's[21] statement, "that it is not at all uncommon as a sequence of gonorrhea to find a bacteriorrhea in which the urine shows large numbers of organisms of different forms, which undoubtedly tend to keep up the inflammation."

Without asserting that the pseudobacillus is always a pathogenic organism, unless overridden and controlled by the staphylococcus, I do believe that in our branch of medicine also the subject of symbiosis is one for further study by the bacteriologists and of vast clinical interest to us in the treatment of rebellious conditions of the genito-urinary tract.

My appreciation and thanks are due to Drs. E. L. Keyes, Jr., Henry J. Perry of the Harvard Medical School, Bingham H. Stone, E. H. Buttles and Percy Carpenter of the Laboratory of Research, Medical College of the University of Vermont, H. A. Bosma of New York and others for the various courtesies extended during the preparation of this paper.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. TOWNSEND, HINMAN AND HEIDINGSFELD

DR. G. G. SMITH, Boston: There is only one point in which I should not agree with Dr. Hinman entirely, and that is that hexamethylenamin in doses of 15 grains, three times a day, could have no effect on the pelvis of the kidney. It may well be that catheterized specimens from the kidney show a proportion of liquor formaldehyd in the urine which is below bactericidal power, but it seems to me that clinical experience has shown that that dosage is of value, and I think this is one of the instances in which we must take the experimental findings with a grain of salt. The clinical findings indicate that hexamethylenamin has a certain amount of value in those conditions. I should like to ask Dr. Hinman what he considers a good average dose of hexamethylenamin?

We have tried various drugs with it and have met with some difficulty in the employment of nearly all of them. Boric acid, I am sure, has caused toxic symptoms in some cases, and the acid sodium phosphate is likely to cause diarrhea. It seems to me that we have still to find a drug which will increase the acidity of the urine.

DR. M. KROTOSZYNER, San Francisco: Dr. Hinman deserves much credit for his painstaking investigations on the efficacy of hexamethylenamin. Not only the general practitioner, but also the urologist, expects almost wonders from this drug, which, therefore, is given promiscuously and dogmatically over a long period in almost all affections of the genito-urinary tract, in which no proper diagnosis has been made. Of particular importance in this connection I consider the fact which was brought out by Dr. Hinman's paper, that large doses of hexamethylenamin, for instance, 15 grains three times a day, are in the majority of instances ineffective on the underlying condition. I am in hearty accord with Dr. Heidingsfeld's demand for a continuous and personal supervision of the Wassermann reaction. Unless we can follow out our treatment by the personal study of the test at close range, I should not lay much stress on it. I also fully believe that our old standby, mercury, has proved to be just as efficacious and indispensable since the advent of salvarsan as it was in the presalvarsan era.

DR. H. A. COHEN, Minneapolis: I do not believe that time will banish the insoluble salts of mercury. Finger, whose work on syphilis is done with as great care as in any clinic in the world, holds that, after the primary stage and very early secondaries, salvarsan should be used with great caution. Already 147 fatalities have occurred. In the sixty-one years of the use of intramuscular injections of mercury, but sixty fatalities have been reported. He does claim that the *sterilisans magna* can be realized by a large early dose of salvarsan in a Wassermann negative case. The many neurorecurrences which take place are conditions which are found most frequently in the late secondary and the tertiary cases, and those neurorecurrences are due to the toxic salvarsan and toxic arsenic condition. We therefore have a double condition to watch, that is, the dosage of the drug itself and the possibility of the body being thoroughly saturated with the spirochetes and never being attacked.

DR. A. L. WOLBARST, New York: Dr. Cohen spoke of 147 deaths from salvarsan reported by Finger. In considering the toxicity of salvarsan, the number of deaths that have been reported must be judged in comparison with the total number of injections that have been administered. If two hundred or five hundred or one thousand injections had been given, and of this number of patients 147 had died, it would be fair to say that the remedy is *per se* a dangerous one; but many hundreds of thousands of injections have been given, many of them by incompetent men and in direct violation of every surgical canon, and, if in this great aggregate there have been but 147 deaths (conceding the number for the moment), it stands to reason that the deaths were not due to the salvarsan itself, but to some extraneous or concomitant conditions, acting in those particular cases, that were not observed in the patient. The patient might have had an idiosyncrasy to arsenic. Such deaths might have been avoided if a preliminary injection of a small dose had been given, as suggested. In the majority of cases in which death followed there have been serious errors in technic. Strict asepsis and functionating kidneys are imperative. When I read of a death following salvarsan and scratch beneath the surface, I am sure to find a serious error, either in the manner of administration, or in the fact that the patient was not suited to the treatment. In most of the fatal cases, if not in all of them, the patient's kidneys do not eliminate the arsenic content of the salvarsan, with the result that toxic results follow. In some of these patients the kidneys are so poor that they cannot eliminate a strong dose of mercury or any other toxic drug. Surely, a fatal result in such cases should be ascribed not to the drug, but to its faulty administration.

We are still in the experimental stage in the use of salvarsan, and while we have a great deal to learn regarding its effectiveness, certain things have been proved which make it by far the most important single factor in the treatment of syphilis. Whether salvarsan should be used exclusively in the beginning, or in the middle, or toward the end of syphilis must still be determined, but we do know that salvarsan has given wonderful results in every stage and form of human syphilis. True, it has occasionally failed to come up to expectations, but so has mercury and so has every other remedy for every other human ailment. We all know that there are some cases that resist mercury, and the harder the mercury is pushed the stronger the antagonism to the drug becomes. The same may be true of salvarsan. I believe, however, that with salvarsan at our command we can attack syphilis with greater certainty of good results than ever before. I think it will in time supersede mercury as our first reliance in syphilis. We are not yet quite ready for that, because we do not know enough about it, but, if I can judge from my own experience, covering about three thousand injections, I am satisfied that mercury will eventually become the second line of attack — a reinforcement of salvarsan, as it were. In the meantime, I think it proper that both drugs be employed in every case of syphilis. Finally, I would add that these remarks apply equally well to neosalvarsan as to salvarsan.

---

[21] Brown, T. R.: Johns Hopkins Hosp. Rep., 1902, x, 11; In Osler's Modern Medicine, 1909, vi, 236 and 218.

Dr. E. G. Ballenger, Atlanta, Ga.: My experience with salvarsan has been that the greatest danger comes not from giving too much, but from giving too little. We should repeat medium-sized doses and keep them up for a considerable period of time, administering mercury either simultaneously or later. I think the danger of neurorecurrences comes when we give but one or two doses in the early secondary period. The neurorecurrences that I have seen have almost invariably been in that stage of the disease, and improvement has always followed the repetition of salvarsan and neosalvarsan. I think that fact points away from the toxic effect of the remedy, and I have not hesitated to repeat the dose of salvarsan. At first I was in doubt, but the improvement was so prompt when I repeated the injections that I have since repeated them as soon as I have seen evidence of auditory or ocular neurorecurrences.

Instead of pitting salvarsan against mercury we should pit both against syphilis. Of course, we have secured good results with mercury in the past, and yet we have but to think of the many cases of paresis, tabes, aneurysm, cardiac lesions and various other luetic affections to see wherein mercury has not done all that it should have done. It has had about four hundred years' trial. Certainly the advances we have made enable us to make better headway and to give the patient much more satisfactory treatment than formerly.

As has been emphasized by nearly all discussing the treatment, we cannot have a routine method. We must treat the patients individually and persistently until the clinical symptoms disappear and the blood and spinal fluid show negative serologic tests.

Dr. J. T. Geraghty, Baltimore: In the first fifteen cases in our clinic in which salvarsan was employed, two neurorecurrences were found within a few months. These patients received only one injection and no other treatment. Subsequently mercury and repeated injections of salvarsan became the routine, and during the last two years we have not had a single neurorecurrence in the cases treated in this way.

Dr. Louis E. Schmidt, Chicago: I am not a believer in giving one injection of salvarsan and then a Wassermann, because no matter whether or not the test is carried out by an expert a negative reaction is not an absolute indication of cure. I believe that the intermittent form of mercurial treatment should be kept up for an indefinite period of time. If you give salvarsan and find the reaction negative, and then repeat it in the course of thirty or sixty days, and again find that you have a negative Wassermann, I hardly see why you should expect later manifestations. I think that we should give repeated doses, and alternate with mercury, and then rest from thirty to sixty days and watch the reaction. During the first year we should give an interrupted course of mercurial treatment as we did formerly, and naturally, in the following years keep up the Wassermann reactions and at the same time continue mercurial treatment, but not with the same regularity as during the first year's treatment.

Dr. Victor Vecki, San Francisco: I know that we have to take the middle way. We are between the one extreme that Professor Finger of Vienna represents, and the other extreme represented by Wechselmann. The latter lays all the deaths from salvarsan at the door of mercury. He maintains that mercury rendered the kidneys insufficient, causing vascular hyposthenuria, and that consequently the kidneys were not able to eliminate the salvarsan and thus caused all these deaths. It is not even the fault of the technic; you can do anything you wish with salvarsan, only do not use any mercury.

While I have reported a fatal case of syphilitic myelitis after intramuscular injection of salvarsan, I fortunately have no experience with death caused by salvarsan directly. I think that this is due to the circumstance that I did not wait for Wechselmann to tell me to watch carefully the functionability of the kidneys before using salvarsan. The therapy of syphilis belongs to the urologist. The dermatologist may be a fine man in diagnosing the cutaneous symptoms of lues, but when it comes to treating syphilis, the dermatologist cannot have the proper idea of the functions of the kidney. Our present methods of testing the kidney functions are rather crude, and I am sure that in the future the blood itself will have to be examined more carefully. What I want to emphasize is, in answer to any one who maintains that mercury did not do the work in the last four hundred years, that it did whenever it was properly employed. I have never seen the fourth stage of syphilis in a case that was treated properly with mercury.

Dr. M. L. Heidingsfeld, Cincinnati: I was favorably impressed with the remarks of the first speaker in reference to the reports in regard to Wassermanns. A Wassermann to my mind and in my experience is thoroughly trustworthy if it is carried out properly. It is a test of great detail and accuracy and requires most painstaking methods, and I am sorry that a great many laboratories are not particular to give reliable reports. I know that their methods are not accurate.

It is perfectly apparent to every one that mercurial treatment is an aid in these cases, but I cannot see the rationale of giving mercury if it is not necessary. If we effect a complete cure in some of these early cases of syphilis, in the initial stage, what is the object of subjecting a man to two or three years' of mercurial injections and inunctions when that has proved itself to be unnecessary? I think that the Wassermann reaction is the mentor and the oracle of syphilis; it is the arbiter and should go hand in hand with the consulting physician.

We have had four hundred years of mercury, and we have had four hundred years of unsatisfactory results. We have had many years of deep muscular injections of insoluble salts and the Wassermann has shown that many of these cases have been treated successfully. I believe in mercury injections; I believe in cacodylate of sodium, but they must be used in connection with the Wassermann, and the Wassermann gives us the best information in that direction.

We must not be guided by any one man, and particularly not by a man like Finger, who has been pessimistic in regard to salvarsan from the beginning. The unfavorable results, according to Ehrlich, are not due to salvarsan, but to errors in technic, and since syphilographers have been using distilled water they have eliminated them almost entirely. We have evidence that some of the cases of death were due to errors of technic, the use of water that was not distilled. It is notorious that the men with small experience are the men with most unfavorable results; the men with large experience have had few unfavorable results.

CORRECTION OF IMPEDIMENTS OF SPEECH IN OUR PUBLIC SCHOOLS *

HARRY F. McBEATH, M.D.
MILWAUKEE, WIS.

There is no common ailment which I believe has received less consideration at the hands of the medical profession than that of stammering. The subject was given but small consideration up to the beginning of the nineteenth century, at which time it was seriously studied by Arnott, Columbat, and Schulthers. A little later came the period of surgical enthusiasm, originated by the work of Diffenbach. Through the efforts of Kussmaul, Gutsmann, and Wyllie the knowledge of the subject was placed on a sound scientific basis. Perhaps the most exhaustive study ever given the subject was by our own noted scientist, Prof. Alexander Melville Bell. To-day the question is kept alive by a limited number of men, foremost among whom may be mentioned Dr. G. Hudson-Makuen of Philadelphia and Dr. E. W. Scripture of Columbia University.

---

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The medical profession as a whole, however, has never given the subject the serious study it deserves. Patients are frequently advised by men otherwise competent in their line of work to pay no attention to their stammering, as they will in time outgrow it. As a result of our neglect the field has been almost entirely usurped by the charlatan. This not only deprives the stammerer of the help to which he is entitled, but discourages properly directed work along this line. We have never before given weight to the work of mountebanks, but in this connection it would appear as though their results were the basis for the poor prognosis generally given out by medical men.

Analyzing stammering as we do other maladies, do we find about it anything that would place it in the category of hopeless cases or justify the indifference usually shown these patients? There has been much discussion regarding the difference between stuttering and stammering, and while it may be of clinical interest, essentially they are but a different expression of the same underlying state and may, therefore, be covered under the one term stammering.

The most common causes of stammering may be given as conscious or unconscious imitation, shock, and the exaggerated effort to speak, such as occurs during and after debilitating diseases. These causes are active up to the time that stammering is established, when they become inoperative. After this the condition is dependent on emotional disturbances, in the presence of which the patient is unable to speak correctly because he is afraid of stammering. Therefore, stammering is a psychoneurosis, with fear its basic element. With the elimination of fear, there is a speedy return to normal. The stammering patient is entirely ignorant of how to direct his efforts to produce normal speech. He knows what he wants to do, but does not know how to do it. Just as soon as he acquires the knowledge of how to proceed to speak he is relieved of his fear of stammering. In the stammerer the psychologic processes of speech are normal up to the point at which the central innervations leave the mind. Here the neurosis assumes control and gives rise to a clonic or tonic spasm of the muscles controlling speech.

The treatment consists in bringing to a state of perfection, in the order named, the acts of respiration, phonation, and articulation. Perfect respiration not only insures a sufficient volume of air for voice production but also relieves the spasm, and puts under volitional control the muscles concerned in speech. In the words of Dr. Makuen, "good breath control is absolutely essential to good voice production." With reference to phonation Professor Bell tells us that "voice is the material of speech, and this fact in all its meaning the stammerer has to learn. He must have voice, whatever else he lacks, and must therefore acquire command of a full, strong, unbroken stream of sound."

Articulation is of minor importance and need not occupy the mind of the patient until after his speech is stable. As tersely expressed by Professor Bell, "the mouth tube is constantly varying in shape, but it is always a transmitter only, and never an originator of sound. All effort thrown into the mouth, jaws, lips, or tongue is futile. These should be passive as nearly as possible." The patient having mastered the exercises which give him control of his speech apparatus there remains but the psychologic condition of habit with which to deal, and continued practice along correct lines in time displaces the abnormal in the channels of the mind.

Prof. Frank A. Reed, who elaborated on and made use of Professor Bell's principles in thousands of cases, puts his views in the following words: "The whole philosophy of the scientific overcoming of the stammering habit may be summed up in the simple statement that it consists of the acquirement of sufficient self-control and skill to assure the complete control of the breath at the diaphragm and its absolutely free, unhampered outflow from that point." Dr. Scripture insists that before treatment is instituted a diagnosis should be made by a competent physician. At this time the patient should be examined and treated for physical defects which would tend to make his recovery difficult. Nasal stenosis should not be overlooked. Dr. Makuen writes: "I have been struck with the frequency of intranasal obstruction and pressure in these cases due to irregularities of the septum, and almost all stammerers have a marked irritability of the pharynx, which I think is to some extent responsible for their difficulty of speech."

Having made sure that these patients will be benefited by the application of the principles herein advised, there is no reason why they may not be entrusted to a specially instructed teacher. It does not require a mind with the technical training of a physician to comprehend the principles on which the work is to be carried out. The most approved methods for gaining control of the physiologic processes which go to make up speech, having been given in detail by those competent, can surely be followed by a properly trained teacher. It is special work and the classes must be small; one year, however, will usually accomplish the desired results, and where can we find another special department which in any length of time graduates a child with a return to normal to crown its efforts?

Statistics covering over three thousand cases show a complete loss of the impediment in 80 per cent. This has been raised to 98 per cent. in three hundred cases treated in the public schools of Milwaukee, where the pupils are held in special classes at the discrimination of the teacher. Quicker results would be obtained if stammerers received all their instruction in special classes. Much is lost by allowing them to take their regular studies under teachers who do not understand their condition. These special departments once established will be in a position to take advantage of most cases at their inception, thereby gaining a maximum result with a minimum effort. There are in the schools of the United States 13,143 deaf pupils. Of these 75.4 per cent. are being taught speech. Does it seem reasonable that so little should be done for the multitude of stammerers, who with comparatively small effort could be made the equals of their fellowmen?

The attitude assumed by some, that the stammerer gets along as well as any one, and that it matters little whether or not he is relieved, may be pardoned in the laity, but can hardly be tolerated in the medical profession. Those who are in a position to know can verify that there are but few afflictions in which the mental anguish is greater than in the stammerer. The indifference on our part may possibly be explained by the fact that the treatment of these patients is not well carried out in the office, hospital, or sanatorium, but is best handled in the class room. The fact that we are not in a position to treat these patients, however, and do not know where to refer them, does not help the stammerer or excuse us. We should see that there are places, in every large city at least, where the stammerer will receive the kind of treatment we know is correct. This can be done by putting our seal of approval on the diploma of every teacher properly trained for this line of work.

It is a fact of no small significance that the school superintendents in fifty of our largest cities are almost unanimous in their opinion that the stammerer's plight is of sufficient gravity to warrant special attention in the public school. Several of them in fact have installed a department for the correction of stammering, where, if we were in a position to recommend a teacher of proper qualifications, the success of the undertaking would be assured. In some instances these departments are placed in charge of teachers whose special preparation was for work with the deaf. This is a misdirected effort, and naturally the results are not commensurate with the labor expended.

That the stammerer can be successfully handled in the public school there is no question. What is needed is the help and cooperation of the medical profession in encouraging the installation of a department for the correction of impediments of speech, to see that teachers for these departments receive proper training, and to furnish school boards with information regarding the stammerer.

Could the American Medical Association do better than to establish a department similar to the Volta Bureau maintained at Washington, D. C., by the American Association to Promote the Teaching of Speech to the Deaf? Through its bureau the efforts of this society have brought into use the most approved methods for handling the deaf in nearly all public and private schools where the deaf are being instructed. That the great majority of stammerers do not know where to turn for help other than to the institution of the quack is the condition present in the United States to-day. There is a sufficient number of stammerers to warrant the establishment of a special department for them in our public schools. The results are more brilliant than it is possible to obtain from other special lines of work, such as with the blind, deaf, and defective children. While the work may be greatly advanced by the medical profession, as individuals we are not prepared to handle this class of cases. That the stammerer is allowed to go uncorrected and that there is so little effort made to improve his condition is a disgrace, not only to our profession, but to the community at large.

It is my sincere hope that this body will take it on itself to inaugurate a movement which may be the means of encouraging and putting on a proper basis the correction of impediments of speech in our public schools.

121 Wisconsin Street.

ABSTRACT OF DISCUSSION

Dr. Elmer L. Kenyon, *Chicago:* The extremely important sociologic side of this problem, having to do not only with stammering, but also with other defects of speech, has never been adequately met, at least in the United States.

It is certainly true in Chicago, and doubtless in all other large cities, that there are thousands of children who have defects of speech which, if not corrected, are bound to make their success in life difficult and often impossible. It is also true that among this great number of stammering children, a large percentage have not enough means to pay for the rather expensive private teaching which they must have. It is also to be said in this conne[illegible] that, even if one with defects of speech has money [illegible] ike [illegible], there are comparatively few places [illegible] ted [illegible] re he can go and have competent as[illegible] st [illegible] Not only because the problem is a [illegible] len[illegible] lly, but also because if it is ha[illegible] ysic[illegible] be handled honestly, I think tha[illegible] pr[illegible]

concern itself with this disorder. So far as the sociologic problem is concerned, treatment should be undertaken in the schools by all means. Speaking with some reservations, I think that this is where it belongs. The children must go to school, and, therefore, they can all be reached and reached early, which is of great importance. If I had any critical remark to make about Dr. McBeath's paper, I think it would be that, perhaps, he did not emphasize the difficulties of curing stammering so much as he might rightly have done, though I am sure that he understands them. These difficulties apply especially to the fully developed cases. Stammering begins ordinarily just before or just after the child goes to school. There should be machinery ready in every city to perform the task of preventing the further development of the stammering if when the child first enters school he shows a tendency to do this. The difficulties to be overcome are not small, but the needs warrant the effort. Behind such an effort there should be competent medical and psychologic oversight.

Mrs. Frank Reed, Detroit: I have been in this work for twenty-five years. I believe that no class of afflicted people has been so imposed on by unscientific and unskilful treatment as the stammerers. The time has come for scientific men to look into this subject and to advise and educate the public. The average person—parent, physician or teacher—feels that the child will outgrow its speech defect. Teachers generally do not know what to do, and say to the stammering child, "Hurry up, say what you have to say or keep quiet." This embarrasses him; his mind becomes centered on his difficulty and it grows. Public schoolteachers do not understand stammering children and do not know how to train them. They go to some school and observe a class for a day, or ten days, or read some fake advertisement and think that they know all about the method of treatment, and then they try it on the children. This is not fair to the children. The difficulty in correcting stammering is great, but it can be overcome. We should recognize the difference between difficulties and impossibilities. Just because a thing is difficult is no reason why we should not undertake it, but it is a reason why teachers who undertake to correct stammering should have a thorough scientific training in the mechanical and psychologic processes of speech. The subject of fear enters largely into the training of these children. If the child is taught by a competent teacher to keep his emotions under the control of the will, the result will be more satisfactory. Statistics show that most of the stammering occurs during the school age. The teacher excites the child, or does not know how to handle him. It is time that teachers have the proper training in order not only to correct, but also to prevent the misery. When these children are relieved of their difficulty they are normal. We spend thousands of dollars in our schools for training defectives, and when all that is possible has been done for a thousand of them, it does not equal the benefit to one cured stammerer.

Dr. Thomas J. Heldt, Columbia, Mo.: As Dr. McBeath has pointed out, this is really a school problem. If we could have the children under medical inspection from the beginning of school life, we should be able to select those who could not be cured by proper training by a competent teacher. If, while under the specially trained teacher, there is no improvement, then the real cause of the trouble has not been disclosed and the stammerer's fear has been improperly approached. Dr. McBeath, in speaking of this fear, said that it was the source of great anguish to the stammerer. Just what is it that lies back of that anguish? Dr. McBeath referred to it as the fear of stammering. I think that it is not only the fear of stammering, but also something deeper. Cases treated by the Freudian method have brought out surprising results and suggest that it is some incident in that child's or adult's life that is the cause of this fear. I call to mind a case seen recently—a young lady of 19. There is only one time when she stammers, and that is when she is introducing a friend. Then she is worried and flustered. The thing lying [illegible] of that disturbed state is not simply the fear of not [illegible] able to select the right words and make the introduction properly, but probably some incident in her life that must be approached by psycho-analytic methods. I believe that psycho-analytic treatment promises worthy results in these cases.

DR. TRUMAN W. BROPHY, Chicago: It seems to me that our duty lies in the direction of doing all we can to place persons who are thus afflicted in the hands of those who are eminently prepared to correct the defect. Other defects, aside from stammering come into our experiences in the management of those who are not able to speak distinctly. For a long time I have been trying to help these persons by directing them to experts in phonation. Such teachers as Dr. Kenyon, Dr. Hudson-Makuen of Philadelphia, Dr. Scripture of New York and Mrs. Reed of Detroit are able to do so much to assist those afflicted in this way, help them out of their difficulties and put them in a position to go through life as others do, that I feel that we should recommend these persons to them for treatment.

DR. A. T. RASMUSSEN, La Crosse, Wis.: I devote a good deal of time to the practice of facial orthopedia, commonly known as orthodontia. A case comes to my mind of a bright boy, 15 years old, whose parents brought him to me stating that he stuttered, and asking that, if possible, I find a reason for it. They said that he stuttered seldom, but that when he did, it was very bad. There seemed nothing wrong about the boy's condition except some slight oral defects. I performed an oral operation, correcting a slightly undeveloped maxilla, and gave the boy a great many suggestions. He does not stammer now. Whether it was altogether the suggestion, or whether it was the treatment, or whether it was a combination of the two, I am not prepared to say, but I think that we should take into consideration the possibility of this defect being due to some pathologic condition in the mouth.

MRS. FRANK REED, Detroit: I think that the gentleman who has just spoken has made it quite clear to us that any physical defects which are present should be corrected, and that possibly such correction would give the child a suggestion that he can talk all right when he has learned the process of speech.

DR. H. F. MCBEATH, Milwaukee, Wis.: Dr. Kenyon and Mrs. Reed have made clear to you the disadvantages to the individual stammerer, and Dr. Brophy makes the suggestion that they be sent to eminently able people for correction. Knowing the number of stammerers in this country, we see that but a small fraction can be handled by the few who are capable of doing the work. What is needed by the schools is an outline of the principles which should be followed so that the teachers shall not be permitted to continue experimenting. In twenty-six cities in the United States the number of stammerers in the schools is not even known. In twelve cities the schools are attempting to do this work and are getting good results through their special teachers.

Nearly all of the school superintendents from different parts of the country in answering my questionnaire express themselves as seeing the need in the near future of establishing a department for the stammerer. It seems to me that the American Medical Association might outline a superior method which would be a great help to these educators.

Underweight Schoolchildren.—In one of the public schools in Philadelphia, Walter W. Roach found that ten pupils between 6 and 7 years of age were 62 pounds underweight, or an average 6 1/5 pounds per child; eighteen pupils between 7 and 8 years were 110 pounds underweight, or an average 7 11/16 pounds per child; fifteen pupils between 9 and 10 years were 93 pounds underweight, or an average 6 1/5 pounds per child; sixteen pupils between 10 and 11 years were 165 pounds underweight, or an average 10 1/3 pounds per child; six pupils between 11 and 12 years were 58 pounds underweight, or an average 11¾ pounds per child; twelve pupils of 13 to 14 years were 167 pounds underweight, or an average 14 pounds per child.—Paper read at Buffalo Congress on School Hygiene.

A METHOD OF CLOSING A SINUS BETWEEN THE ANTRUM OF HIGHMORE AND THE MOUTH *

L. W. DEAN, M.D.
IOWA CITY, IOWA

The topic with which this paper deals has been chosen for three reasons: first, because I have had so much difficulty myself in eradicating these sinuses; second, because I see so many sinuses left after others have operated; and, third, because a search of the literature has failed to furnish very much information regarding the technic of such a procedure. Since selecting the topic I have operated in twenty-three such cases. They were all cases of alveolar necrosis with antrum involvement, with the exception of two cases, or they were cases of permanent sinus following an operation for antrum suppuration secondary to alveolar necrosis. The two exceptions were, first, a large infected dentigerous cyst, lying external to the antrum. This was drained into the nose through the antrum. And, second, a case of composite follicular odontoma which was also drained into the antrum and through it into the nose. With the cases of alveolar necrosis and Highmorian empyema a Denker operation with the complete removal of the necrotic bone was performed.

Various methods for closing these sinuses were tried. Those tried at first gave uniformly bad results. The perfected operation gave about ninety-five per cent. good results. I will describe simply the technic of that part of the operation which was performed after completing the Denker operation, and also the various methods attempted in the order in which they were tried.

First, I removed the necrotic bone and then the inferior portion of the alveolar process. Just enough of the latter was removed to bring the periosteum of its inner and outer surfaces together. The two layers of periosteum were then sutured with interrupted sutures of black Chinese silk, No. 4. These sutures did not hold but tore out within a few days notwithstanding the fact that they were carefully cleansed every two hours with hydrogen peroxid.

Second, the periosteal flaps were prepared the same as before, and, using the same silk, by means of double-armed sutures the threads were introduced from within out, just above the bone. These sutures held better than the first but tore out in two or three days.

It was now manifest that the Chinese silk was not the proper substance for suture material. It would become soaked with saliva, swell, and naturally become crowded with micro-organisms. It was quite impossible to keep these sutures clean.

Third, silk-worm gut was substituted for Chinese silk as in the second method. These sutures could be kept clean and held several days longer than the others, but not long enough to secure healing. The silk-worm gut would cut through the mucous membrane and the periosteum.

Fourth, various substances as gauze, pieces of rubber tube, lead plates, etc., were placed within the loop of silkworm gut, on the inner surface of the alveolar process and a second piece placed underneath the outer ends before they were sutured. This was done with the hope of preventing the sutures from cutting through the membrane and periosteum. The pieces of gauze which are so successful in similar sutures on the skin could not be kept clean in the mouth and soon caused trouble. The lead plates were much more difficult to apply than the rubber tubing and had a tendency to cut the membrane. Whole pieces of small rubber tubing or pieces cut longitudinally in halves were used. These sutures would hold nicely for from five to seven days when they would tear out and the sinus would be reestablished but not so large as before.

---

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

It was evident that the cause of our trouble was not now due to the suture but to the fact that sufficient bone was not removed to allow apposition of the periosteum without too much tension on the suture.

Fifth, the method which I consider the very best was used. It is the one that we have used in the last half of our operations and while it has not been successful in every case, it has given us 95 per cent. good results. The method is as follows: After completing the Denker operation and being sure that there is excellent drainage into the nose, the alveolar process is attacked. After removing the necrotic bone completely, enough of the inner and outer lamella of the alveolar process is removed to allow of perfect apposition of the flaps that have been previously lifted from its inner and outer surface. These flaps must come nicely together so that it is not necessary to have any tension on the sutures. Then I place along the inner and outer surfaces of the alveolar process at this point a piece of small rubber tube sufficiently long to allow it to be tucked underneath all the sutures; then using double-armed silkworm-gut sutures, a sufficient number are introduced from within out, the loops resting on the rubber tube on the inner surface of the alveolar process, the knots being tied on the rubber tube on the outer surface of the alveolar process. Care should be exercised to tie the sutures just tight enough without getting them so tight as to produce pressure-necrosis of the flap. These sutures are cleansed hourly with hydrogen peroxid following the operation. The nurse must be exceedingly careful to clean in and around the sutures and tube thoroughly. If this operation is done at the time of the antrum operation the incision for the Denker operation is made high up and is entirely separate from the incision on the border of the alveolar process. The periosteum, from the outer surface, is elevated completely without being torn and handled with great care while the necrotic bone is being removed and the inner and outer lamellæ of the alveolar process are being cut down.

With every case of necrosis the operator must exercise his individuality in making the cut on the border of the alveolar process so as to get the best possible apposition of periosteum. The results of this operation have been surprisingly gratifying to me. As a rule the wound margin remains clean, the sutures remain clean, and when they are removed on from the seventh to the tenth day leave behind a well-healed wound. When I attacked this problem last summer I did not expect such gratifying results. It is an operation that I can recommend for trial.

ABSTRACT OF DISCUSSION

Dr. Thomas L. Gilmer, Chicago: I should like to ask Dr. Dean if the operation he described for curettement of the maxilla is not similar to the Caldwell-Luc operation.

Dr. Dean: The Denker operation differs from the Caldwell-Luc in that the incision is on the anterior wall of the bone. It is practically the same operation.

Dr. Truman W. Brophy, Chicago: I congratulate the author on his success in closing the sinus, but in my experience the greatest difficulty is in keeping it open. Most surgeons find it difficult to keep it open until the cavity is in a healthy condition. When I succeed in doing this, I always feel that I am fortunate.

The question of sutures within the mouth has been to me one of the great problems. In my earlier experience I had the same results with silk that Dr. Dean has had; I therefore abandoned long ago the use of anything in the mouth that would absorb the secretions, using only silver and horsehair sutures and lead splints. I have had trouble in finding horsehair that could be relied on for sufficient strength for this purpose. It may be kept in the mouth a month, if necessary, without causing any irritation.

Dr. G. V. I. Brown, Milwaukee, Wis.: Some time ago I was operating where they had the most satisfactory horsehair that I had ever used. The hospital authorities took the hair out of the tail of the ambulance horse and boiled it. Prepared in this way it is soft and pliable and not brittle. Sometimes, however, I have found it treacherous. We never have had any infection from it in the hospital, where it has been used a long time.

Dr. C. H. Oakman, Detroit: In antral cases in which the palatal bone is necrotic I seldom find it necessary to divide the soft tissue overlying the hard palate, but rather cut high above the teeth or amputate the roots of the molars or bicuspids, making a wound sufficiently large through which to remove the necrotic bone. Within the last eight months I have successfully treated four or five cases in which a portion of the palatal bone was necrotic in this manner. In chronic cases, in which the adjacent sinuses are liable to be involved, I fit a vulcanite plug into the wound. This is held in place by the cheek and affords the necessary drainage. In this way the topography of the palate is little affected, which I believe to be of the utmost importance.

Dr. Truman W. Brophy, Chicago: About three years ago I found that the hair of the tail of a bull is much softer, larger and stronger and will endure a great deal more tension than horsehair. It sustains 25 per cent. more weight than horsehair.

Dr. L. W. Dean, Iowa City, Iowa: I appreciate the discussion regarding the kind of horsehair which should be used. I did not mention the use of horsehair in my paper. It was tried, but its quality was so poor that it gave no satisfaction.

THE SURGERY OF INFANTILE PARALYSIS*

EDWIN W. RYERSON, M.D.
Professor of Orthopedic Surgery, Chicago Policlinic; Assistant Professor of Orthopedic Surgery, Rush Medical College (University of Chicago)
CHICAGO

During the early days after an attack of acute anterior poliomyelitis there is usually little to be done except to make the patient as comfortable as possible. Pain is often so severe that massage and electricity cannot be used, and the only important detail of the treatment is the careful prevention of deformity.

This paper will deal only with the treatment of paralysis of the legs and the trunk, as paralysis of the arms is much less frequent, and would require too much additional time to consider.

The most common deformity following infantile paralysis is the dropping downward of the foot at the ankle-joint, pes equinus. In some cases this is not due to a permanent paralysis of the anterior tibial muscle and the toe extensors, but to the fact that in many instances the attending physician takes no measures to hold the foot at a right-angle during the first few months after the attack. As a general thing the patient is confined to the bed for some weeks or months, and the usual position in bed is with the feet pointing downward nearly or quite in the same line as the leg. The return of power, in cases in which motor power actually does return, is often too slow and gradual to balance the structural shortening of the gastrocnemius and soleus, and by the time the full power has returned the Achilles tendon is too short to permit of dorsal flexion.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Although the shortening is not actually in the Achilles tendon itself, but in the muscle fibers, custom has sanctioned the use of the term "shortened tendo Achillis." This shortening, which generally requires an operation for its relief, can be and should be always prevented, either by a light splint of the Volkmann variety, or by a posterior molded plaster-of-Paris splint, or some similar apparatus, easily removable for the daily massage and passive and active movements. By such treatment, many patients will recover a considerable degree of muscular power which would otherwise either be lost entirely or regained much later by the aid of operative interference. In a similar way, contracture deformities at the knee must be carefully prevented, either by suitable splints or by weight and pulley traction. Contracture of the tensor vaginae femoris (tenso fasciae femoris), which is an extremely difficult deformity to treat in its later stages, can be readily prevented, in most instances, by not allowing the leg either to rotate outward or to be abducted at the hip. Hoffman's work in this line is well worthy of attention.

In case, however, that some or all of these deformities have occurred, radical treatment is necessary. If the case be recent, forcible manual correction, with or without an anesthetic, may prove successful, especially if done by degrees at several sittings. A removable cast or a simple brace must now be worn until either the recovery is complete or until the time for radical operation has arrived. Every effort must be made to induce the patient to use actively all the weakened muscles during regular exercise periods every day. In small children considerable ingenuity may be required to devise exercising games and to stimulate the patient's interest and cooperation. Massage is of value, and galvanic electricity may be of some assistance. The faradic current is useless.

This line of treatment must be carried out until the period of spontaneous repair, or the probationary period, has been passed. This period is not a definite one. It is not probable that any improvement in the condition of the ganglion-cells in the cord will occur after the lapse of a year, but it is perhaps possible. It is my custom to postpone operative interference, so far as practicable, until two years after the attack. During this two-year period, however, some of the contracture deformities may become so powerful that the braces or apparatus can no longer control them. It is necessary in such cases to perform conservative tendon-lengthening operations, although it is always advisable to avoid them whenever possible until the probationary period has been passed.

CORRECTION OF LATE DEFORMITY

This must be done in all cases before the radical operation is performed, but can in most cases be done at the same sitting with the radical operation in children. It consists most frequently, as a matter of practice, in the lengthening of the Achilles tendon.

While in cases of congenital club-foot a simple transverse tenotomy is perfectly safe and satisfactory, increasing experience has led me to prefer an open lengthening of this tendon in cases of both flaccid and spastic paralysis. One patient with poliomyelitis and one patient with spastic cerebral paralysis on whom subcutaneous tenotomy was performed in this clinic have had loss of function because of too great lengthening of the tendon, and have required secondary operative shortening. Waterman and Hibbs have reported similar cases. This tendon should, then, be lengthened by the simple step method, and sutured with fine silk. No variations of this method offer any advantages over it. The methods of Bayer and Gocht are ingenious, but no better. The sheath should always be restored by suture.

In many cases other work than lengthening the Achilles tendon may be necessary. All existing deformities must be corrected by suitable means, such as manipulations, forcible redressment, and even operations on the bones. If such work be neccessarily of much severity, it may be well to postpone the more delicate operative procedures until all reaction has subsided. This is especially advisable when oozing blood from bony surfaces necessitates temporary drainage, and also when the skin incisions have been unavoidably placed where they would lie directly over the site of a tendon transplantation or silk ligament insertion.

In pes equinus it is often wise to lengthen the toe flexors in addition to the Achilles tendon. The simplest way to do this is to plunge a small tenotome into the sole of the foot at the base of each proximal phalanx, feel for the tendons with the flat of the blade, and then divide them while the toe is dorsally extended. This will divide both the long and the short flexors.

Knee contractures offer more difficulty than foot deformities, from the fact that in many cases of long duration the leg cannot be straightened without endangering the vessels and nerves. If circumstances will not permit the gradual correction of the deformity, it becomes necessary to shorten the femur. Since we desire a movable joint, it is not wise to resect the articular surface. A section of the femur can be removed just above the epiphysis, and the epiphysis moved upward and reattached to the shaft. This operation will be found of service in other conditions than anterior poliomyelitis, and has the advantage of sparing the articulation, while affording any desired shortening of the femur.

Old contractures around the hip are most frequently those of flexion and abduction. These may require radical operations. The tensor fasciae latae, the rectus femoris and sometimes the iliopsoas must be cut by open incision. If adduction be present, subcutaneous myotomy and forcible stretching will generally give satisfaction.

The deformities of the spine cannot at present be benefited by operation, and can be treated only by forcible correction and retention in molds or braces. Abbott's method of correction is of considerable aid.

I now come to the problem of retaining permanently the correction already attained. It is a matter of everyday experience that the simple correction of the deformities due to infantile paralysis does not affect a permanent result. No matter how thoroughly the tenotomies and redressments are done, no matter how long the correction is maintained by apparatus, relapse will surely occur when the apparatus is removed. In this particular a paralytic club-foot, for example, differs intrinsically and radically from the ordinary congenital club-foot. In the latter, the congenital variety, redressment, tenotomies and retention in plaster casts or braces will effect a permanent cure in a reasonably short time. In a paralytic club-foot of precisely the same general appearance, the same treatment will be effectual only while the casts or braces are being used. Almost immediately after the apparatus is abandoned the foot will begin to relapse into its previous deformity. Unless we are willing to condemn the patient to a life of constant brace-wearing, we must provide active or passive antagonists to prevent the healthy muscles from pulling the limb toward themselves.

TENDON TRANSPLANTATION

When enough muscles remain unparalyzed, tendon or muscle transplantation will give excellent results if properly performed.

The two principal methods to be considered are those advocated respectively by Vulpius of Heidelberg and Lange of Munich.

In the Vulpius method, the entire healthy tendon, or a portion of it which has been partially split off from it, is sutured to the tendon or muscle which it is intended to strengthen. This method and its modifications have been so extensively used by Vulpius and his followers that there would seem to be little doubt of its efficacy. In my experience, however, it has been found of value in only a limited field. It is useful, particularly in the arm and forearm, and in supplying power to the flexors and extensors of the toes, but when used where a considerable strain is to be thrown on it, as in the tibial or peroneal muscles, it shows a tendency to lose its efficiency. This may be due to the stretching of the paralyzed tendon, but in many cases cannot be referred to any definite cause. The operation is technically easier than the method of Lange, but it is not so certain in its results.

After a considerable experience with the method of Vulpius, I began, some years ago, to use the periosteal implantation of Lange. This gave satisfaction in many of the cases in which tendons were transplanted, but proved not strong enough for the silk suspension cords or ligaments used in cases of drop-foot. In a number of instances a gradual slackening was noticed in the silk ligaments, which caused an annoying return of the drop-foot position. It was not known just where the weakness lay until a few months ago, when one of my cases seemed to supply a solution. A boy of 7 had been operated on nearly two years ago for paralytic drop-foot. A heavy braided silk cord, size 14, was woven into the periosteum over the base of the first metatarsal and the inner cuneiform, and then carried up under the annular ligament and tied into a hole bored into the tibia. A year ago the foot was found to have dropped again so that it was difficult for the patient to walk. The silk was cut down on and a strong pull was made on it to determine the strength of the attachments. To the operator's surprise, both attachments seemed perfectly firm and strong. The silk had become covered with a dense, glistening covering, which could be readily peeled off. The cord was cut, and tied together again so as to shorten it enough to bring the foot up once more to a right angle with the leg. In spite of this, however, a gradual dropping once more began after the cast was removed, and about three months ago the lower end of the silk was dissected out. The loop of silk which had been woven into the periosteum was found to be nearly 1½ inches from the place in which it had originally been inserted. There was a strong fibrous band from the loop of the silk to the inner cuneiform bone, evidently the stretched and hypertrophied periosteum which had gradually been pulled up and elongated by the weight of the foot. It looked very much like normal tendon tissue. Sometime before this evidence was obtained, however, I had abandoned the periosteal fixation method in the silk ligament suspensions, and had practiced the insertion of the silk directly through drill-holes bored in the bones of the foot as well as the tibia.

The Codivilla method of nailing the tendons to the bone is not so reliable as the direct suture with silk.

TECHNIC

Since drop-foot is probably the most common deformity due to infantile paralysis, it seems proper to describe in detail the operative procedures for its relief.

When the anterior tibial muscle is the only one paralyzed, the extensor longus hallucis will make a satisfactory substitute. A curved incision is made over the inner border of the foot and the tendon cut opposite the base of the first phalanx. A hole is bored with a 1/16-inch drill through the base of the first metatarsal bone, and a loop of strong silk is passed through by a needle. The end of the tendon is laid in the loop, and the loop and tendon pulled through the bone. The foot is held at a right angle, and the tendon pulled taut. The free end of the tendon is then passed through a slit in the "standing part" of the tendon, and is then itself split and the ends brought around the standing part and sewed with several interrupted fine silk sutures. This firmly anchors the tendon to the bone, and provides a useful extensor for the tarsus. The distal end of the toe extensor can be sewed to the tendon of the second toe to prevent toe-drop.

In cases in which there seems need of a more powerful extensor of the foot, the extensor tendons of the four smaller toes can be braided together and sutured to a loop of silk passed through a hole bored in the fourth or fifth metatarsal bone.

If the toe extensors are paralyzed, the peroneus longus, the tibialis posticus or the toe flexors can be passed through the interosseous space and sewed into the tarsus or metatarsus. The results are seldom entirely satisfactory when tendons are passed through the interosseous space, probably because adhesions are more likely to occur. I have often passed the peroneus longus around in front of the tibia just under the skin, with excellent function, although the dorsal flexion is apt to be combined with outward deviation of the foot. Usually, if possible, the tibialis posticus or a toe flexor should be similarly carried around the tibia, to correct this deviation.

Splitting of the gastrocnemius, in an endeavor to procure a division of function and thus making two separate muscles of the gastrocnemius, has been an entire failure in all of the cases in which I have operated.

When so many muscles are paralyzed that transplantation is not feasible, the foot can be made useful by permanently checking the foot-drop. Several methods may be used, of which arthrodesis is perhaps the best known. I have done about thirty operations of this kind and the results have been far from satisfactory. It should never be done in children under 14 by the ordinary technic, for bony union is very uncertain below this age.

In any case, the feet are nearly always painful for a long time after the operation, and the absence of dorsal flexion causes inconvenience, especially in walking uphill. It is possible that better results may be obtained by cutting a bone-spike from the tibia and driving it upward through a hole bored through the os calcis and the astragalus, and up into the tibia, but I have not as yet used this method. Lexer has reported good results with it.

SILK LIGAMENT SUSPENSION

It is much more satisfactory, and it is easier and safer, to suspend the foot at a right angle by heavy silk cords running from the tibia downward in front of the ankle to the bones of the foot. This operation has been widely used by Bradford, Soutter, Allison and others in this country. When done by the proper technic it affords a strong and painless foot which is held at or near a right angle and is capable of passive dorsal flexion. The operation can be modified to control any lateral deviation, varus or valgus, and by the addition of posterior cords can control calcaneus deformity. I have done a large number of these operations during the last five years, and although by the older methods some of the earlier cases proved disappointing, the present technic can be relied on to give satisfaction.

TECHNIC

A curved incision with its convexity downward is made from just below the scaphoid to the middle of the inner metatarsal bone. The flap is retracted, and the soft tissues are dissected away from the proximal end of the metatarsal bone. A drill-hole is bored in the base of the metatarsal, and through it is passed a braided silk cord, size 12 to 16, previously boiled in a 1:1,000 solution of mercuric chlorid. The cord should be 20 inches long, for easy handling. It is pulled through to its middle, and a loose single overhand knot is tied just above the bone to keep the two strands close together. The ends are then threaded into a long eye in the end of a Bessemer steel wire probe about 3/32 inch in diameter. This probe is stiff enough to stand a considerable strain, but can be bent as desired. The tendon of the tibialis anticus is now exposed at its insertion into the cuneiform and metatarsal, and a small slit is cut in the sheath. The probe, slightly curved toward the end, and carrying the silk, is passed into the tendon-sheath, and is forced gently upward under the annular ligament until it reaches a point on the tibia 2 or 3 inches above the ankle-joint. A curved incision is made over the tibia at this point, and the end of the probe is pushed out through it. This is easily done with the steel probe, but is much more difficult with the ordinary silver or copper probe. The silk is now pulled out of the eye of the probe and clamped with a hemostat for purposes of identification.

A similar operation is now performed on the outer side of the foot, the fifth metatarsal being drilled and threaded with a similar silk cord, which is then passed up the sheath of the peroneus tertius tendon and made to emerge from the tibial incision. A drill-hole is now bored through the crest of the tibia, and one cord of each of the pairs of cords is passed through it by means of a large needle. The pair of cords from the inner side of the foot is now pulled tightly enough to bring the foot to a right angle, and tied with a triple square knot. The outer cords are now tightened enough to bring up the external border of the foot to the same level, and likewise tied. This now holds the foot firmly, and the incisions are closed. It is well to sew the subcutaneous soft tissues over the silk cords as a separate layer, and to suture the skin very carefully. A plaster-of-Paris cast is applied, and removed in about two months, after which there is usually no further need of external support. In cases of marked varus, the silk cords from the outer metatarsal are fastened into the fibula instead of the tibia.

OTHER OPERATIONS

Four cases of pes calcaneus have been treated by lengthening the semitendinosus with heavy silk and inserting the silk into the os calcis. There has been some benefit in all of these cases, and the operation seems worthy of more extended trial.

When the quadratus is paralyzed, and the hamstrings are strong, excellent results can be obtained by transplanting the biceps and semitendinosus forward into the patella. This is one of the most satisfactory operations within the range of tendon transplantation. The two hamstrings must be dissected upward for a long distance through separate incisions, heavy silk cords woven into them, and a wide opening made in the subcutaneous fatty tissue for their passage. The silk cords should be threaded through drill-holes in the patella, the tendons pulled down to the patella, and the cords tied. Several interrupted silk sutures are also used to sew the tendons to the surface of the quadratus. It is not necessary to insert the cords into the tubercle of the tibia.

This operation is also of benefit in some of the cases of spastic paralysis in which undue flexion of the knee is present.

I regard the use of the bichlorid silk as one of the marked advances in this department of surgery, and I feel that great credit is due to Lange for his advocacy of this technic. The silk rarely causes trouble when properly used, and can apparently remain indefinitely in the tissues without losing its strength or acting as a foreign body. So far, it has not seemed necessary to paraffin the silk, although this is advised by Lange.

The use of intra-articular silk ligaments had been practiced by Bartow and Plummer to produce limitation of motion in cases of partial or total paralysis. The cords are passed through the bones and joints in such a way as to make a partial stiffening of the joint. This method deserves trial, but I have not as yet attempted it.

NERVE TRANSPLANTATION

The work of Hans Spitzy in the grafting of nerves seemed to offer new possibilities in the treatment of infantile paralysis. It is obvious that successful nerve-grafting would attack the trouble at almost its very source, and would be far better than any peripheral operations on the muscles or tendons. The method advocated by Spitzy was to make a small slit in the nearest healthy motor nerve of sufficient size, and to implant in this slit the distal end of the paralyzed nerve. The technical difficulties are often not great, and require merely care and precision. About six years ago I operated in nine cases by the method of Spitzy. Seven of these were cases of paralysis of either the external or the internal popliteal nerve as a whole. In another case the musculocutaneous was grafted into the anterior tibial, and in the last-named case the musculocutaneous nerve of the arm was inserted into the median. None of these operations was followed by any actual nerve regeneration that could be demonstrated.

These results seemed so discouraging that I have so far made no more attempts of this kind.

Vulpius and Stoffel report some rather encouraging results by a highly interesting and complicated method by which the various nerve-fibers are differentiated at operation with electric stimulation. This would afford an opportunity for the end-to-end anastomosis of suitable nerves, which would be more logical than Spitzy's technic. Their recommendation to perform such operations within six months after the attack, however, should not be followed.

CONCLUSION

I believe that far too little surgery is generally done in cases of infantile paralysis, and that nearly all cases can be benefited by properly planned and properly executed operations.

In a single paper of this length the subject can be only sketched lightly, and the intention has been to call attention to a few of the more useful operations which have stood the test of time and experience.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. E. A. Rich, Tacoma, Wash: For the last few years I have been much interested in this line of work and wish to attest its efficacy. If judgment is used in the diagnosis of the pathology present and in the selection of the proper corrective procedure, and if the work indicated is skilfully performed, the condition of the limb should be bettered. In some patients not suffering extensive muscular losses, the restorations after wise surgical measures are often marvelous. While the leg cannot be made so large or so beautiful as the normal leg it is always possible to restore all or part of the function.

Dr. F. J. Gaenslen, Milwaukee, Wis.: I was interested to hear Dr. Ryerson's frank report regarding his experience with neuroplasty. When abroad last summer, I paid particular attention to this procedure in infantile paralysis. Dr. Spitzi of Graz operated on one patient while I was there, but unfortunately I saw none of his late results. Dr. Putti of Bologna said that Spitzi had operated on three patients for Dr. Codivilla in Bologna, and that in none was there any improvement to be detected by careful examination at the end of two years. There seems to be a lack of interest in neuroplastic methods in recent years. I have had only a limited experience with silk ligatures for drop-foot, etc., but cases of this kind that I have had have been satisfactory. I used bichlorid silk. In one case the large knot caused a pressure sore on the outside of the tarsal bones. That granulated over, however, and gave no further trouble.

Dr. Roland Meisenbach, Buffalo, N. Y.: Dr. Ryerson's excellent work in this connection has brought many ideas to my mind. The use of silk has been well established for tying purposes. In employing the silk for the purpose of substituting tendons or ligaments, we should consider carefully whether we have to deal with an actively growing epiphysis, as in children, or not. This does not hold good so much in drop-foot as in deformities in other parts of the body, for instance, the knee-joint. Implanting silk ligaments may be temporizing only.

Dr. Ryerson made the statement that silk remains indefinitely in the tissues. I cannot altogether agree with him in this regard. Several years ago I had occasion to make some experiments in regard to silk and catgut in tissue. The cross section showed that the catgut readily absorbed. It required for silk, however, a longer time. The first process was to bring to it many leukocytes, and then slow absorption took place. I can readily understand what becomes of the silk in cross section, but I should like to know Dr. Ryerson's theory in regard to the lengthening of these fibrous bands or ligaments, as the child grows older. Silk is unelastic, and I think that it makes little difference whether one uses braided or twisted silk. Lange, I think, uses braided silk. I have been employing silk substitutes for tendons in selected cases only, as I do not believe that it is the ideal method of procedure in many cases of infantile paralysis.

Dr. Nathaniel Allison, St. Louis: Dr. Meisenbach has brought up the question that interested me a great deal in doing this work; that is, the ultimate fate of these silk strands and ligaments. I undertook to find out primarily what took place by introducing silk strands into the tendon-sheaths of dogs. I had one animal that carried such a strand in his tendo Achillis sheath for five months. On section of that tendon, I found that the tendon-sheath had proliferated to a marked degree and that the silk was infiltrated with cellular elements to a great extent. So it seems to me that this might answer, in a way, the question asked by Dr. Meisenbach concerning the fate of these ligaments. This was braided silk. If the process should go on and the silk become absorbed, it seems probable that a fibrous band would be left, which might be serviceable as a ligament. That is my idea, at least.

Dr. Edwin W. Ryerson, Chicago: I said that the silk apparently remains indefinitely in the tissues. That does not mean much, because I have only about five years to report on in my cases. In all of them that I have been able to trace, in which the operation took place five years ago, the silk is still there. There has been a marked increase in its size, which is, of course, due to the connective tissue forming around it. It has, so far, shown no signs of being absorbed.

Many operators use twisted silk instead of braided silk, but it is not so strong, compact or rigid. I have seen no specimens presented to show the actual absorption of the silk, and I do not believe that it will occur. I do, however, believe that in some cases the silk may be worn through after a time; but you have seen the picture of the woman in whom it has been in place for two years, with a great deal of strain on it. In this case, four large No. 16 cords were used, and they are apparently still there.

I think that Dr. Meisenbach wanted to know what happens when the leg grows and the silk does not. Of course, the silk does not change its length, and I have been interested in speculating on the ultimate result in such cases. As you know, the majority of growth in the tibia—three-fourths of it—takes place at the upper end. I do not place the silk much above the lower epiphysis, where only one-fourth of the growth occurs. The growth would be likely to cock the foot up in the air, but this has not as yet happened in any of my cases. In some cases in which periosteal implantation was done, the foot has dropped down on account of periosteal stretching. If the silk ligaments should become too short, one might do a tenotomy and lengthen them, or put in a lengthening piece of silk.

If the subcutaneous tissues are sewed thickly over the site of the knots, they will seldom give any trouble. Of several hundred cases, I have had the silk give trouble in but three. In two of these, the silk came out. This was due to a stitch-abscess. In the other, there was a deep abscess and a small piece of silk came out. These were tendon transplantation cases. In only one case has a silk ligament given any trouble.

ACIDOSIS AS A COMPLICATION AFTER SURGICAL OPERATIONS *

W. B. RUSS, M.D.
SAN ANTONIO, TEX.

No length of training in surgical technic, no amount of experience in the operating-room, can make a competent surgeon of any man who is poorly equipped in the theory and practice of general medicine. The practitioner of surgery who loses interest in the problems of internal medicine becomes in time but little better than an overrated and overpaid mechanic plus a deficient surgical judgment and minus a surgical conscience; yet many of our surgeons of great note and most of the lesser lights struggling for recognition actually boast of their ignorance of, and lack of interest in, any branch of medicine outside the immediate scope of their special work.

It is small wonder, then, that the men engaged in other lines of work, particularly the neurologists, complain that most of the so-called neurasthenic patients they are called on to treat present abdomens decorated with scars marking the sites of operations that have made worse the conditions they were designed to relieve. Unwarranted operations, with the resulting cost in suffering and heart-breaking disappointment and the discredit cast on the profession, are bad enough, but there is yet another and a graver indictment against the surgeon who through ignorance or carelessness fails to study his patients before taking them to the operating-table. I refer to his failure to recognize in a large percentage of chronic cases certain symptoms that bear no close relationship to the conditions for which he proposes to operate, but are veritable danger-signals warning him of the existence of some more or less grave constitutional state, some serious disturbance of metabolism, which for the time at least renders the patient an extra hazardous risk for a general anesthetic, and yet with proper attention may be cleared up and a serious danger averted.

---

* Read before the Section on Surgery, State Medical Association of Texas at San Antonio, Tex., May 8, 1913.

The handling of a surgical case may arbitrarily be divided into:

1. The examination and diagnosis.
2. Preparation for the operation.
3. The operation.
4. The postoperative care.

The examination and diagnosis, requiring in many cases by far the greatest amount of learning and skill, are often treated in a perfunctory way. The case not infrequently comes into the surgeon's hands with the diagnosis already made and the operation planned by the family physician, who may or may not be a competent man. The surgeon too often accepts this diagnosis almost without question and merely confirms it with a few leading questions covering history of the local condition for which operation is proposed, and then after a limited physical examination and a partial urinalysis to determine the specific gravity and the presence or absence of albumin and sugar, directs that the patient be given the "usual preparation for operation," meaning the routine in vogue at the hospital and applicable to all cases without special reference to the peculiar needs of any one case.

The operation receives the only serious attention given by the surgeon himself, and fortunately the modern hospital technic and skilled assistants and nurses render this work safe as far as infection, hemorrhage and shock under ordinary circumstances are concerned. The hospital routine and skilled nursing furnishes all the after-care needed for ordinary cases. In any event, it is all that the patients are likely to receive. If at the operation the diagnosis is found to be correct, and, the patient's condition is in other respects satisfactory, the result will, of course, be all that could be desired. If, however, an innocent appendix has been removed, a harmless gall-bladder drained, a gastro-enterostomy done for chronic reflex pyloric spasm, or an unoffending uterus or a harmless movable kidney fixed in a position that will give rise to real symptoms instead of imaginary ones, as before the operation, surgery has merely been discredited once more, and the patient and the patient's friends disappointed and subjected to needless expense and heartaches.

This certainly is not to be desired and the surgeon deserves the censure of all right-minded persons. If he deserves censure for his carelessness in failing to exhaust every available means to arrive at a correct diagnosis before subjecting the patient to the fearful ordeal of a surgical operation, what are we to say of his failure to note in his patient's history and present condition a symptom-complex which could not possibly be accounted for by the local conditions, which clearly points to some perverted state of metabolism, and may constitute a serious menace to the chances for an early recovery, if not, indeed, a danger to life? Suppose, for example, that the patient has been starved by an improperly balanced diet, deficient in carbohydrates and consisting chiefly of proteins; has been starved and exhausted by prolonged diarrhea or vomiting, or has been a victim of so-called food terror in which he or she voluntarily refrains from taking proper food in sufficient amounts; or suppose that the patient is suffering from some toxemia, the result, perhaps, of chronic intestinal indigestion with constipation; the prolonged ingestion of some poison such as alcohol or tobacco, or drugs such as the salicylates, or is the victim of a toxemia resulting from some obscure organic disease as of the liver, pancreas or kidneys. The patient, let us say, is a young woman seeking relief for a chronic appendicitis. Suppose we confirm the diagnosis and advise operation, but fail to note that:

1. She has an abnormal dread of the operation and seems terror-stricken to an unusual and unaccountable degree.
2. She suffers from tachycardia and a tendency to dyspnea.
3. She complains of frequent headaches, vertigo and great mental depression.
4. Her breath has a peculiar sweetish odor, suggesting the odor of rotten apples.
5. Her extreme and peculiar nervousness has been sufficient to cause her family some anxiety as to her mental state.
6. The patient's urine is loaded with acetone, and therefore perhaps also with diacetic acid and beta-oxybutyric acid.

Failing to be warned, the surgeon allows this patient to go to the operating-table after the usual routine hospital preparation. The following account of what happens is familiar to us all.

1. The patient resists the anesthetic after the manner common only in such cases, and in alcoholics.
2. She vomits incessantly and the nausea persists for several days.
3. The pulse becomes rapid and often irregular.
4. She remains drowsy and stupid for an unusually long time after the anesthetic is withdrawn.
5. Her temperature may shoot up without apparent cause.
6. She is nervous and restless and suffers intensely, but does not tolerate an opiate well.
7. After a prolonged and anxiously watched convalescence the patient finally recovers.

This is the usual history, but some of these patients are not so fortunate. All the symptoms are much exaggerated. The patient does not completely regain consciousness, but after ten or twenty hours of persistent vomiting, rapid and irregular heart-action, a rising temperature, wild delirium or a more or less profound stupor, she dies.

A very little knowledge of internal medicine places us in possession of the following all-important facts:

1. These patients are the victims of some perversion of metabolism, associated with diminished alkalinity of the blood and the appearance in the urine of the acetone bodies.
2. They do not tolerate any general anesthetic, and most of them do not even tolerate opium or any other narcotic drug.
3. Large quantities of water, preferably carbonated, a diet of starches and sugars, preferably 5 or 6 ounces

of oatmeal with lactose daily, with alkaline laxatives and sufficient alkalies, such as sodium citrate or bicarbonate, to keep the urine neutral for four or five days, and frequent warm baths with friction of the skin will cause most or all of the symptoms to disappear in an astonishingly short time.

4. The condition will recur to some extent on very slight provocation, particularly after a general anesthetic, but can usually be forestalled by the use of alkalies and water by the mouth, by the bowel, or, in extreme cases, in a vein.

The significance of the acetone bodies in the urine has long been a matter of debate. It was at first thought that they were derived from glucose because of their appearance in diabetes. Then the origin was at a later date ascribed to the proteins, but according to A. R. Short of Bristol University, who has recently summed up all the available evidence, it is now definitely established that they are the result of a peculiar abnormal breaking down of fats. The physiologic process of dealing with fat is to resolve it into carbon dioxid and water with the liberation of heat; but when for any reason the tissues are unable to obtain sugar from the blood, fat is broken down with the production first of beta-oxybutyric acid, then diacetic acid and finally acetone. The relative amounts of these acids are dependent on the rapidity with which the breaking down of fats occurs. R. C. Cabot says that the appearance of the acetone bodies is due to a diminished utilization of carbohydrates because *(a)* sufficient carbohydrates are not ingested, *(b)* the sugar is not absorbed, or *(c)* the sugar is not assimilated.

The rôle played by the liver is not clearly understood, and it has not been demonstrated according to some authorities whether the fatty degeneration found in the liver, kidneys and other organs after death in these cases is the cause or the result of the acidosis. Apparently the acetone bodies are not in themselves poisons except in enormous doses. It would seem that the evil done is not due to any particular acid but rather to the reduction in the alkalinity of the blood. In the condition of abnormal catabolism of fats with the production of the beta-oxybutyric acid, diacetic acid and acetone, the body first relies on the reserves of sodium and potassium, but chiefly on the large quantities of ammonia, the result of the normal metabolism of the proteins. The ammonia combines with the beta-oxybutyric and diacetic acids and does not become converted into urea by the liver. Finally the supply of ammonia fails and the alkalinity of the blood falls, and a fatal termination results unless something is done at once to restore, at least in part, the normal reaction.

After all, we are not concerned with the many theories seeking to account for the appearance of the acetone bodies in the urine; but the fact that their appearance does indicate a serious perversion of the patient's metabolism and strongly contra-indicates the administration of a general anesthetic, until by appropriate treatment the patient becomes able to tolerate the anesthetic and to stand the operation, is of the greatest importance.

Every surgeon, of course, knows that certain nervous symptoms, such as abnormal fear of an operation, headache, a rapid pulse and a tendency to nausea usually indicate that the patient will not tolerate the anesthetic well and will probably suffer much from nausea and vomiting, restlessness and an unaccountable rise in temperature during the convalescence. My attention was first directed to the possibility of a fatal issue in exaggerated cases of this type about six years ago, when called in the following case:

Case 1.—A boy, aged 16, had been operated on three years previously for chronic appendicitis. He had suffered much from headaches, extreme nervousness and fear of the operation. The anesthetic given was chloroform. During the anesthesia his excitement was extreme and he had to be held on the table. He failed to react promptly and remained in a semistupor, with a rapid, irregular pulse and persistent nausea and vomiting. A specimen of urine removed by catheter contained some albumin and casts and was extremely acid in reaction. (No test was made for the acetone bodies.) In spite of the odor of the anesthetic this boy's breath had the peculiar sweetish rotten-apple odor characteristic of acetonemia. His condition went from bad to worse and at the end of eighteen hours he died. At the time I did not recognize the nature of the trouble.

Case 2.—A year later a second case of the kind occurred. The patient, a nervous, so-called hysteric girl, aged 18, whose history showed that she had suffered much from vertigo and from persistent neuralgic headaches and from an irritable bladder, had also had an interval appendectomy. She had often had vomiting spells and had been told that she was a victim of the uric acid diathesis. She was constipated, but suffered from frequent attacks of diarrhea. The urine before the operation did not contain albumin or sugar, but was very acid.

The anesthetic in this case was ether and a large amount had to be administered because of the difficulty in keeping the patient relaxed. She left the table with a rapid, thready pulse, persistent vomiting and dyspnea. In a few hours her temperature had reached 104 by rectum. The urine was heavily charged with acetone, and the odor could be easily detected on the breath. The urine also contained albumin and casts. She died in twelve hours.

Case 3.—A woman aged 24, with a history of chronic colitis and periods of obstinate constipation, with tenderness and gurgling in the right inguinal region, had been advised a year before to undergo operation for chronic appendicitis. Two weeks before the operation she consulted her family physician for relief from persistent headache, general muscular soreness, mental depression and occasional fainting spells. At the time the tongue was coated, the breath bad and the urine extremely acid and containing indican. Nitrous oxid and oxygen was the anesthetic and no ether at all was given. Once the anesthetic had to be withdrawn because of the danger of respiratory failure, and she never was completely relaxed. She failed to completely regain consciousness, and developed persistent vomiting, an intermittent, irregular and rapid pulse, marked dyspnea and a rapid rise in temperature to 105 in less than five hours after the operation. The breath was characteristic and unmistakable, and the urine, which was secreted at the rate of about 2 ounces per hour, was heavily charged with acetone, but no albumin or casts, and the specific gravity was low. She was given alkalies by the bowel and in a vein, but without avail. Death occurred in about twenty hours.

Case 4.—Mrs. ———, aged 38, above the average height, the sister of a well-known physician, sought relief for a large uterine fibroid which for about a year had caused a considerable loss of blood and much pain. For a number of weeks she had lived on an almost carbohydrate-free diet, a part of the time living on meat extract broths. During this time she had developed a chain of very distressing nervous symptoms, most prominent of which were vertigo attacks, great excitability, with a pronounced muscular tremor on slight exertion, and frequent headaches, with occasional attacks of persistent vomiting lasting as much as twenty-four hours. I saw her first in the afternoon preceding the day set for the operation, and on entering the room was immediately struck with the pronounced odor of acetone. The patient was propped up on pillows, saying that she could not get her breath easily when lying down. The pulse was rapid and she was much excited. She said that she had not slept any on account of nervousness for three nights and felt a firm conviction that she would die. The urine examination showed an enormous amount of acetone, but no albumin or sugar. Operation was deferred, and the patient, under the care of Drs. D. M. Stone and B. F. Stout, was kept for a week on a diet of 6 ounces of oatmeal with milk, sugar and cream daily. She was made to drink large quantities of carbonated water, and had colon irrigations twice daily with an ounce to the quart of sodium bicarbonate and from 3 to 5 drams daily of sodium citrate by mouth. On the morning of the fourth day the patient stated that she had had her first restful night's sleep in six months, that her headaches and nervousness had entirely disappeared, and that she did not dread the operation any longer. She was now quite cheerful. The change in her condition was indeed remarkable. The pinched, anxious, haggard expression had disappeared and she seemed quiet and relaxed and rested. On this day there was but a trace of acetone, and the urine was alkaline in reaction. Three days later she was operated on, her pulse having been reduced in the meantime from 120 to 78 when at rest. Ether was given. She left the table in good condition, but at the end of six hours became restless, and began to vomit and to suffer from dyspnea. The urine again contained acetone and some albumin, with a few granular casts. The stomach was washed out with a strong sodium bicarbonate solution and she was placed on the Murphy drop with sodium bicarbonate solution, an ounce to a quart. In a few hours her condition was again normal. She made a good recovery, but three months later called at my office complaining again of headaches and nervousness, and confessed that she had failed to follow directions with reference to diet, etc. The alkalies, diet, warm bathing and. alkaline irrigation soon restored her to normal.

CASE 5.—Miss E., a trained nurse, aged 26, gave a history of having had appendicitis when a child and having suffered from obstinate constipation, a coated tongue and flatulency and headaches ever since. During the past year she had had a number of attacks of intestinal colic, always accompanied with nausea and vomiting and great nervousness. Recently she had had several severe attacks of pain in the right side with rigidity, vomiting, extreme prostration and a fear of impending death. This girl had always been unwise in the selection of her diet. She drank very little water and her diet consisted chiefly of proteins. The urine contained indican and acetone and was very acid. She was prepared for the operation with a view to eliminating the danger of acetonemia and stood the operation well, except that she resisted the anesthetic very much and could not be relaxed. In spite of our efforts she had four days and nights of intense suffering from pain, restlessness, vomiting dyspnea, headache and abdominal distention. The ascending colon had been stripped of a very extensive pericolic veil, but this could not account for the pain and distention. She finally recovered after a rather tedious convalescence, during which colon irrigations with a soda solution played a prominent part in the treatment.

I have collected the records of thirty-four cases, in which a fatal issue resulted in seven. The cases reported, however, are typical and I will not lengthen the paper by detailed reference to the others.

CONCLUSIONS

Because of a marked reduction in the normal alkalinity of the blood, the result of some perversion of metabolism, many of the patients requiring surgical operations are unfit subjects for general anesthesia and the ordeal of an operation. The warning signs in such cases are:

1. A history of unaccountable headaches, vertigo, attacks of dyspnea, occasional nausea or vomiting, an unreasonable dread of the operation, tachycardia and other nervous symptoms.

2. A peculiar sweetish odor to the breath, suggesting the odor of rotten apples. In some cases this is marked and unmistakable.

3. The presence in the urine of the acetone bodies.

To disregard these warning signs is to subject the patient at best to (1) an anesthesia requiring large amounts of ether or chloroform, and attended with struggling and great rigidity of the muscles, difficult breathing, a rapid pulse and nausea, followed by a prolonged and nerve-racking convalescence with persistent vomiting, restlessness, dyspnea, a rise in temperature and much suffering, or, if less fortunate, to (2) the certainty of a fatal termination, preceded by nausea, air-hunger, persistent vomiting, a rise in temperature, great nervousness, followed by coma and death in from ten hours to two or three days.

A recognition of acidosis in time followed by the institution of such measures as a carbohydrate diet of, say, from 6 to 8 ounces of oatmeal and cream with lactose, large quantities of carbonated alkaline water, colon flushings with an alkaline solution and the internal administration daily of 3 or 4 drams of sodium bicarbonate or sodium citrate by mouth will be followed by a rapid disappearance of all or most of the unfavorable symptoms, and the patient will be rendered for the time being at least a safe subject for the anesthetic and the operation.

Hicks Building.

VON MIKULICZ' DISEASE—FURTHER STUDIES

WILLIAM LINTZ, M.D.
Associate Visiting Physician at Brooklyn Jewish and Kings County Hospitals
BROOKLYN

Von Mikulicz' disease is a chronic, indolent, symmetric enlargement of one or more of the salivary or lacrimal glands, which is non-painful and which von Mikulicz could not classify under any of the diseases heretofore described. The first case of this nature was presented by von Mikulicz,[1] Jan. 23, 1888, before the Verein für wissenshaftliche Heilkunde at Königsberg. In 1894 von Mikulicz first described what he thought was a distinct and typical well-defined heretofore undescribed disease.

The following case is an example of his syndrome:

History.—M. B., a man, aged 22, feeder by occupation, was born in the United States of parents from Galicia, Austria, who have been married for thirty years and have ten children, all living and well with the exception of one who died from an infectious disease in childhood. Both parents are alive and enjoy perfect health. The patient, whom I saw March 4, 1912, does not drink or smoke; he is very nervous and consumes a great deal of coffee. At the age of 2 he became blind and remained so until 7 or 8 years old. Vision is poor now. At the age of 3 he had infected cervical lymph-nodes, which were lanced. He has always been troubled with nasal catarrh and cannot breathe through the nose. For the last four years he has been having a hemorrhage [from lung (?)] once a year. He has stomach trouble and is constipated. About five years ago he had skin disease associated with constant itching. For the last six years he has been ruptured. He has had discharge from the left ear for years. The patient had a soft chancre four years ago which healed without treatment; he has not taken any internal treatment; he never had gonorrhea. Three years ago he noticed a painless swelling appear over the right submaxillary region. About two years later the left submaxillary and the right parotid glands became enlarged.

---

[1] Von Mikulicz: Berl. klin. Wchnschr., 1888.

These swellings are absolutely painless and fluctuate in size, becoming larger and then smaller at times, apparently without any cause. The patient has dryness of mouth, and coughs and expectorates slightly. He feels perfectly well otherwise.

Examination.—Swellings: Both submaxillary glands are smooth, symmetrically enlarged to the size of a hen's egg, are freely movable and the skin over the glands is also freely movable. Right parotid gland enlarged to the size of a hen's egg and has the same characteristics as the submaxillaries. The swellings are firm in consistency, not tender, and show no evidence of inflammation or fluctuation. The remaining salivary, as well as lacrimal glands, are perfectly normal.

General: Patient is well built and nourished, and the mucous membranes are not pale. Posterior cervical, epitrochlear, axillary and inguinal lymph-nodes are palpable. Six scars on the neck mark the location of the before-mentioned operation. The thyroid gland on the left side is somewhat enlarged, and is smooth, soft and homogeneous. The tibia is irregular in outline and contains pigmented scars. There is also a pigmented scar over the left patella.

Mouth, Nose and Ears: Patient breathes through the mouth; cannot breathe through nose. Tongue is coated and dry; tonsils enlarged and throat is red and congested. He has a very narrow and high-arched palate. There is more breathing-space in the right nasal cavity than on the left side. He has adenoids and hypertrophied turbinates, is hard of hearing, and the left ear is discharging.

Heart: Negative.

Lungs: Dulness of right and left apices. Occasional subcrepitant râle and roughened breathing over left apex.

Abdomen: Liver and spleen not enlarged. No masses palpable and no resistance can be felt.

The temperature, pulse and respirations are practically normal.

Treatment and Course.—Dietetic and hygienic measures were adopted, with Fowler's solution and potassium iodid. May 5, 1912, the patient suddenly began to have hemorrhages from the lung, altogether twenty-four in number. He went to Denver, stayed two weeks and then went to Omaha, where he stayed one week and returned to New York. He was rapidly failing, when at this time he was advised by an old woman whose husband had had what had been pronounced as fatal tuberculosis and had cured himself by drinking his own urine. Patient has been drinking daily, since Aug. 15, 1912, from three to five glasses of urine, immediately after voiding. At first he used to have abdominal cramps after drinking urine, but now he feels no pain and in fact likes the beverage. Since he began this treatment the patient has felt very much improved. Not only have the salivary glandular swellings diminished in size or returned completely to normal, but his general health has greatly improved. He looks very much better and has gained in weight. His appetite has improved, he has lost his night sweats, and coughs considerably less. His hearing has improved, although his ears discharge just as much as previously. The nasal discharge is considerably less. Tubercle bacilli are present in the sputum.

April 6, 1913: The parotid glands on both sides are normal; no swelling can be felt on the right side. The submaxillary glands on the left side are the size of a hazelnut. On the right side the gland is divided into two parts, is round, smooth and movable, and the skin over it is movable; one is the size of a hazelnut, the other the size of a pea. The lacrimal glands are not involved.

General: The patient still breathes through the mouth; he cannot breathe through the nose. The tongue is coated with grayish-white fur: the tonsils are red and hypertrophied. There is a grayish-green membrane on the posterior pharynx. The lymph-nodes are palpable.

Chest: The supraclavicular and infraclavicular fossa are deeper on the left side. The left clavicle is more prominent. There is dulness over the right apex and left upper lung. There is prolonged and roughened expiration over the right apex. Roughened breathing and subcrepitant and crepitant râles are present in the left upper lobe of the lung.

The abdominal organs are negative. The weight of the patient is 125 pounds.

BLOOD EXAMINATION

	March 4, 1912.	April 4, 1913.
White blood-cells, total..	....	21,500
Polymorphonuclears	80 per cent.	76 per cent.
Eosinophils	0 per cent.	1 per cent.
Lymphocytes (small).....	18 per cent.	21 per cent.
Mononuclears	1.5 per cent.	....
Mononuclears and transitionals	....	1.5 per cent.
Mast-cells	0.5 per cent.	0.5 per cent.
Red cells, total.........	....	9,100,000
Anisocytosis	none.	none.
Poikilocytosis	none.	none.
Polychromatophilia	none.	none.

Urine Examinations: Repeated urine examinations yielded but negative results. The cytology as well as the bacteriology was negative. Repeated examinations for tubercle bacilli proved negative.

Examination of Saliva: Appearance, cloudy; sediment, moderate; reaction, alkaline to litmus; albumin, none; potassium sulphocyanid, none; chlorids, present; nitrates, present; carbonates, none; ferments: all tests showed that the saliva was capable of changing starch into sugar. Microscopic: Numerous bacilli, spirilla and cocci, squamous epithelium, débris, and starch granules.

Wassermann reaction of blood, negative.

CONSIDERATION OF VON MIKULICZ' DISEASE

Location.—In von Mikulicz' classical case not only were all the salivary glands involved but also both of the lacrimals. In January, 1911, I[2] presented before the Brooklyn Pathological Society, a case of von Mikulicz' disease in which only both parotids were involved. Similar cases were reported by Lafolley,[3] Battle,[4] Kummel,[5] Quincke,[6] von Reuss,[7] Minelli[8] and Apert.[9] Involvement of the submaxillaries alone were reported by Kummel, while that of the sublingual alone has occurred but once (Reinbach[10]). Involvement of one of the pair of glands has been reported in the parotid by Kuttner[11] and in the lacrimal by Berlin[12] and Coppez.[13]

Pathology.—Pathologically these cases differ a great deal. In general the lesions may be divided into two classes. In one type of cases the chronic inflammatory changes are conspicuous; in the other type the lymphadenoid hyperplasia.

The majority of writers have found a diffuse round-cell or lymphocytic infiltration, and isolated collections of lymph-nodules embedded in the parotid gland. These nodules are circumscribed and resemble lymph-follicles and are irregularly distributed in the tumor. There is abundant vascular supply, the walls of which show a distinct thickening and sometimes hyaline and amyloid degeneration (Kirschbaumer[14] and Reymond[15]). The capillaries may show a proliferation of the interstitial and connective tissue with resulting sclerosis (Zinn, Kirschbaumer[14] and Swegireff[16]). The gland proper plays a passive rôle, undergoing secondary atrophy and degeneration as a result of compression, until it may completely disappear (von Mikulicz, Minelli,[8] and Swegireff[16]). These authors believe that the process originates in the connective tissue and that the gland element plays a passive rôle. Hirsch,[17] Haeckel,[18] Kuttner[11] and a few others believe that the process originates in the epithelium of the gland proper, which undergoes primary degeneration as a result of the action of some toxic agent, which perhaps reaches the epithelium through the duct of the gland, resulting in a secondary proliferation of the connective tissue. Hirsch[17] has observed independent degeneration of the gland parenchyma in all stages of the disease, affecting even the lobules which were not related to the round-cell infiltration. Haeckel[18] saw in some cases a transition of masses of round cells into connective tissue. A beginning degeneration of the gland epithelium occurred when the gland seemed otherwise normal and free from round-cell infiltration and new connective tissue.

---

[2] Lintz, William: New York State Jour. Med., February, 1911.

[3] Lafolley: Thèse de Paris, 1894.

[4] Battle: Tr. Clin. Soc., London, 1895.

[5] Kummel: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1897, ii.

[6] Quincke: München. med. Wchnschr., 1906, i.

[7] Von Reuss: Mitt. d. Gesellsch. f. inn. Med. u. Kinderh., 1906.

[8] Minelli: Virchows Arch. f. path. Anat., 1906, clxxxv.

[9] Apert: Bull. et mém. Soc. méd. d'hôp. de Paris, 1908, Series 3, p. 155.

[10] Reinbach: Beitr. z. Chir., 1897, xviii.

[11] Kuttner: Beitr. z. Chir., 1896, xv.

[12] Berlin: Würtemberg Korrespondenzbl., 1870.

[13] Coppez: Arch. d'opht., 1903, xxiii.

[14] Kirschbaumer: Arch. Ophth., 1895, xli, No. 3.

[15] Reymond: Ann. di Ottal., 1883.

[16] Swegireff: Klin. Monatsbl. f. Augenh., 1906, supplement.

A certain number of so-called "leukemic cases" have been reported; here the usual pathologic anatomic picture is presented, namely, a nodular or diffuse formation of atypical lymphoid tissue. Warthin asserts that so far as the essential pathology is concerned no histologic difference can be discovered between the two types (leukemic and aleukemic), and that one may pass into the other.

Giant-cells, eosinophils and few epithelial cells have been found in my case previously described, as well as by Tietze,[19] Kummel[5] (Case 25), Stowar,[20] Baas,[21] Minelli,[8] Napp,[22] Kulbs[23] and others.

General.—This disease affects both sexes alike and occurs between the ages of 4 and 70. The duration of an attack varies from two months to twelve years and upward. Xerostoma is, as a rule, a prominent symptom, and it may seriously interfere with mastication or deglutition, depending on the degree of devolvement of the salivary glands. In some cases not only are the salivary glands mentioned before involved, but also the secondary salivary glands of the hard palate, and under surface of the tip of the tongue (Blandin-Nuhn glands) and of the lateral aspect of the posterior portion of the tongue (Weber's glands), are affected. When there is involvement of the lacrimal glands there is ptosis and exophthalmos with hardly any mechanical interference with vision. Lacrimation is usually only an early symptom. The process may be reversed involving first the lacrimal and then the salivary glands, or it may involve one without involving the other, or involve but one gland or any combination of glands. There is none or but slight enlargement of the lymph-nodes. The spleen is not enlarged. Hypertrophied tonsils and adenoids infrequently occur. In most of the cases the blood-picture as a rule is normal. Yet quite a good many authors report cases in which involvement of the hemopoietic system did occur, developing ultimately in typical cases of leukemia and pseudoleukemia (Stock,[24] Senator,[25] Marcuse,[26] Osler,[27] Dunn,[28] Cutler,[29] Gallasch[30] and Bock[31]). The tumors may temporarily or even permanently subside during the course of an acute infection such as general peritonitis, pneumonia, erysipelas, acute pleurisy with effusion and cholera (von Mikulicz, Kummel,[5] Quincke[6] and Zirm, Osler and Delens). After complete extirpation of the involved glands there is invariably no tendency toward recurrence. My first patient is perfectly well to-day, three years after operation. The course of the disease is excedingly chronic, and not infrequently a complete cure may be obtained spontaneously or by therapeutic measures. Of especial value in this disease are arsenic, mercury, iodids and the Roentgen ray. Of itself the disease is not fatal and has no tendency to shorten life.

Pathogenesis and Etiology.—There is no uniform agreement as to how and what is the cause of the disease. Most men believe that the disease is caused by an infection from the buccal or conjunctival bacteria or some parasitic process in the widest sense of the term, though no specific bacteria have been demonstrated in these cases. The infection, when it arises from the conjunctiva, passes thence to the lacrimal gland and by the lacrimal duct to the buccal mucous membrane and the salivary glands, owing to the proximity of both in the nasopharynx. In many cases there was a preexisting disease of the conjunctival mucous membrane (Becker, von Mikulicz, Adler,[32] Haltenhoff[33] and my[2] first case). This patient gives a history of blindness at the age of 3 which lasted for three or four years. Kummel[6] considers that the first conjunctival and second salivary groups of cases depend on the different entrance points.

Ziegler[34] believes that the condition is due to toxic fluids that are chemically irritating, which are probably absorbed from the accessory sinuses (chiefly antrum) and transmitted through the lymphatic capillaries to these contiguous glands. This patient has nasal catarrh and respiratory obstruction.

Apert[9] believes that the condition is caused by hypothyroidism. Some believe that the disease is caused by glandular irritation from some toxic agent in the blood or lymph-stream, causing lymphatic hyperplasia. Others believe that it is of idiopathic origin. Berlin,[12] Arnold, Minelli,[8] Tietze[19] and others compare the process to hypertrophy of the tonsils and adenoids, the hypertrophy taking place from preformed lymphatic tissue in the orbits, between the gland alveoli and capillaries of salivary and lacrimal glands. Wallenfang thinks that it is a pseudoleukemic condition. Minelli believes that it is a benign lymphoma of the salivary glands, which may become generalized just as is the case in Hodgkin's disease.

SUMMARY

After a careful review of all the cases in the literature, I stated, in the description of my first case, that "lues, tuberculosis, or both, in their latent or active stages play an important rôle in this condition, and that the variable pathologic picture is directly dependent as to which one is present or predominates." The present case only corroborates this view. And to my mind it is exceedingly doubtful if von Mikulicz' disease should be classified as a complete and separate entity.

907 St. Marks Avenue.

---

[17] Hirsch: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1898 iii.
[18] Haeckel: Arch. f. Chir., 1903, lxix.
[19] Tietze: Beitr. z. Chir., 1896, xvi.
[20] Stower: München. med. Wchnschr., 1901.
[21] Baas: Ztschr. f. Augenh., 1903.
[22] Napp: Ztschr. f. Augenh., 1907, xvii.
[23] Kulbs: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, xviii.
Ziegler: New York Med. Jour., Dec. 11, 1909.
[24] Stock: Klin. Monatsbl. f. Augenh., 1906, i.
[25] Senator: Berl. klin. Wchnschr., 1907, xliv.
[26] Marcuse: Berl. klin. Wchnschr., 1904 and 1907.
[27] Osler: Am.. Jour. Med. Sc., 1898, cxv.
[28] Dunn, J.: Arch. Ophth., 1907, xxxvi.
[29] Cutler: Med. News, Philadelphia, 1904, ii.
[30] Gallasch: Jahrb. f. Kinderh., 1874, vii.
[31] Bock: Ztschr. f. Augenh., 1899, iii.
[32] Adler: Wien. klin. Wchnschr., 1889.
[33] Haltenhoff: Ann. d'ocul., Brussels, 1891, cii.
[34] Ziegler: Ann. Ophth., 1906, xv.

The Wisdom of Doubt.—It will be well for us to remember the words of Pasteur: "In experimental science it is always a mistake not to doubt when facts do not compel you to affirm."—F. M. Sandwith, in (London) *Clinical Journal.*

GAS BACILLUS INFECTION—A REPORT OF SIX CASES *

L. BRUCE ROBERTSON, B.A., M.B.
BOSTON

There has recently appeared in the *Annals of Surgery*[1] a comprehensive report by Dr. Cramp of this hospital on this type of infection, therefore, it will be unnecessary to go into detail in regard to the history of the cases previously reported. Of the two deaths in this series, one was caused by a deep infection of the thigh muscles complicated by considerable hemorrhage; the other was that of a patient admitted in an advanced stage, though the infection was controlled before the patient succumbed to a pulmonary disease.

That an infection of this type in a localized area can be overcome by the body tissues, as in the untreated interscapular area in Case 2, is a fact already proved by Blake and Lahey.[2] The hydrogen peroxid used in these cases was the undiluted U. S. P. 3 per cent. solution.

CASE 1.—W. D., aged 17, was admitted June 18, 1912, to the service of Dr. L. W. Hotchkiss. June 17, the patient fell from a height of five stories sustaining a compound fracture of the right tibia and fracture of the fibula. The wound was dressed and splints applied at another hospital and the patient was transferred to Bellevue the next day.

June 18: Temperature was 103; pulse 132; respirations 28. Physical examination was negative except for a compound fracture of the right tibia about 5 inches above the ankle; the fibula was fractured at about the same level. The wound was dressed with 7.5 per cent. solution of tincture of iodin and splints applied.

June 20: Temperature still elevated to about 103. Interstitial crepitus has become evident about the wound and extends upward toward the knee; leg very painful. Under nitrous oxid anesthesia, free longitudinal incisions were made in the crepitant tissue, gas bubbles of characteristic odor and dark red fluid exuding from the wounds. A thorough hydrogen peroxid irrigation was made and a dressing of peroxid-soaked gauze was applied. Both smear and culture from the fluid showed the *Bacillus aerogenes capsulatus.*

For the next two weeks the temperature fluctuated between 101 and 105 daily, and the patient had chills almost every day. Complete dressing was made but once a day, being so painful that on each occasion nitrous oxid had to be administered. Throughout the day the dressings were kept moist with peroxid. There was no extension of crepitus following the primary operation, and the wounds, though sloughy, and at first, giving off a disagreeable odor, gradually became clean and healed by granulation. There was severe persistent pain which at times could be relieved only by morphin.

The progress of the patient, except for a small superficial abscess on the back, which yielded quickly to treatment, was very good, and on August 18 the wounds were sufficiently healed to permit the leg to be encased in a plaster splint in which a window was cut to allow a discharging sinus to be dressed. On September 12 a painless swelling appeared in the lumbar region which when opened contained clear fluid showing, on culture, colon bacillus infection. On September 15 a small sequestrum was removed from the discharging sinus on the leg. By this time the temperature of the patient had become normal. Radiographic examination on October 1 showed osteomyelitis of the tibia about the seat of fracture with the presence of a sequestrum, but further operation at this time was considered inadvisable. Three weeks later, the patient, at his own request was discharged in care of his relatives for further treatment in the country. A report of this case made some five months later by Dr. E. M. Armstrong of Tuxedo, New York, shows a small sinus leading down to the bone and incomplete union at the site of the fracture.

CASE 2.—J. S., aged 29, admitted July 1, 1912, to another division of this hospital, had sustained, about half an hour prior to admission, a compound fracture in the upper third of the left humerus, caused by a blow from a paving-stone thrown from a height of five stories, the force of the blow felling him. On admission the wound was swabbed out with 7.5 per cent. solution tincture iodin and dressed with gauze soaked in 50 per cent. alcohol and splints were applied. Pulse in left wrist palpable. Temperature 97; pulse 65; respirations 20.

July 3: Temperature rose steadily yesterday afternoon, rising to 102.4 to-day; pulse 130, respirations 34. Interstitial crepitus found to be present about wound in arm and spreading across to midline anteriorly.

The operation under ether anesthesia in another surgical division of this hospital was a free incision in the deltoid as well as below the seat of fracture and in the anterior axillary fold. All incisions were connected and irrigated with hydrogen peroxid; drainage was by rubber tubing, the dressing of peroxid-soaked gauze. A thin dark red fluid containing gas bubbles which was obtained from the wounds showed the presence of the *B. aerogenes capsulatus.*

The case was transferred to the service of Dr. Hooker.[3] By 10 p. m., the same day the condition had become progressively worse, the patient being very weak and toxic. The interstitial emphysema extended across the breast to the right axilla and upward over the right clavicle to the supraclavicular fossa. In the neck the crepitus extended across the midline anteriorly and upward on each side to the level of the thyroid cartilage, and within 2 inches of the midline posteriorly; the lower limit of the crepitus was found in the fifth interspace at the sternum. The left wrist was pulseless. Under a general anesthetic very free incisions were made in the right breast and on each side of the neck, and blunt dissection was carried out widely through the crepitant tissue. Thorough peroxid irrigation and dressing of peroxid-soaked gauze was made. Dressings were changed every three hours and kept moist with peroxid.

July 4: Temperature 99.8; pulse 120; respirations 26. Patient weak and apprehensive; profuse sweating. No extension of crepitus beyond limits noted yesterday except a small isolated patch about 3 cm. in diameter high up between the scapulae. *This was not opened.* The left arm below the fracture was pulseless and becoming gangrenous.

July 6: Temperature 100; pulse 104; respirations 26. General condition improving slowly though patient shows signs of absorption from the gangrenous arm, in which the line of demarcation is forming. Interstitial crepitus is subsiding; the interscapular area has practically subsided without being opened.

July 8: The general condition is improving. Amputation of the left arm was done at the line of demarcation; the stump was left open and packed with peroxid-soaked gauze. The condition in neck and breast is improving.

The subsequent progress was very good; a localized furunculosis developed over the sacrum, but responded readily to incision and drainage. Except for a slight pocketing of pus in one of the wounds, those of the body and neck healed well by granulation. On July 12 some sloughs from the amputation stump still showed the presence of *B. aerogenes capsulatus* in spite of constant dressing with peroxid. The patient improved steadily, and on August 8, under ether anesthesia, the upper end of the left humerus was removed by incision through the joint capsule; the stump was left open and packed with gauze. The excised head of the humerus showed areas of necrosis. The patient was discharged from the hospital August 21 and by September 14 the stump was healed by firm scar tissue.

CASE 3.—S. J., aged 35, was admitted July 21, 1912, to the service of Dr. R. S. Hooker. Was wounded in the middle of the left thigh by the charge from a shotgun fired from a distance of 12 feet while he was attempting to rob a barge.

---

* From the Surgical Wards of the First Division, Bellevue Hospital, New York.

[1] Cramp, W. C.: Gas Bacillus Infection, with Special Reference to Treatment, Ann. Surg., October, 1912; abstr., THE JOURNAL A. M. A., Nov. 2, 1912, p. 1650.

[2] Blake, John Bapst, and Lahey, Frank H.: Infections Due to the Bacillus Aerogenes Capsulatus, THE JOURNAL A. M. A., May 21, 1910, p. 1671.

[3] Presented by Dr. R. S. Hooker, at the meeting of the Society of Clinical Surgery in New York, November, 1912.

Temperature was 99.4; pulse 84; respirations 26. The injury occurred about one hour prior to admission to the hospital. On the anterior aspect of the left thigh was a large irregular wound in which the entire hand could be inserted and which extended backward past the inner side of the femur. The femoral artery could be felt pulsating in the posterior part of the cavity. Several gun wads and numerous leaden pellets were picked from about the artery and out of the depths of the wound. The cavity was irrigated with peroxid and swabbed out with 7.5 per cent. solution of tincture iodin. There was profuse oozing, and the wound was packed with lengths of gauze. Repacking was necessary in the afternoon on account of the persistent oozing. The severe pain in the leg was controlled by morphin. At 9 p. m. the temperature was 102.8; pulse 116; respirations 24.

The following day the temperature rose to 104 and the patient complained of pain in the affected leg. The outer packing was changed on account of a recurrence of the oozing. Tetanus antitoxin, 1,500 units, was administered.

The next day the patient became rather restless and complained of great pain in the leg. Temperature 103.2. There was a dark reddish fluid on the outer dressing and a disagreeable odor from the leg. No interstitial crepitus was felt. A diagnosis of gas bacillus infection was made, the thigh was opened up widely, irrigated with hydrogen peroxid and dressed with peroxid-soaked gauze. At operation the intermuscular planes were found to be infiltrated with a dark red fluid and gas bubbles giving the characteristic odor. Death occurred thirty hours later.

CASE 4.—M. W., a woman, aged 46, a prisoner, was admitted to the service of Dr. R. S. Hooker, July 21, 1912, having suffered a fracture dislocation of the upper end of the right humerus and a Colles' fracture of the right wrist. Temperature was 99; pulse 100; respirations 24. The body was filthy and showed multiple contusions; the legs were discolored and ulcerated. The patient was put in bed under restraint. The general condition was poor and the patient incontinent. The fractures were treated by plaster splints.

July 26: Temperature was 101.6; pulse 110; respirations 24. A large superficial bleb has appeared over the dorsolateral aspect of the first metacarpophalangeal joint of the right foot, the upper half of the bleb being occupied by a single large gas bubble. On incision the fluid below the bleb was found of a dirty, grayish-green color and the gas had a foul, disagreeable odor. The fluid was positive for *B. aerogenes capsulatus*. The base of the bleb was composed of sloughy superficial fascia. No interstitial crepitus was present in the foot. The affected area was irrigated with hydrogen peroxid and dressed with peroxid-soaked gauze.

Further progress was uneventful. The temperature came down to normal three days later, and for the next twelve days rose to about 99 each day. By August 15 healthy granulations were present over the affected area and the patient was discharged to court.

CASE 5.—W. S., a Russian man, aged 55, was admitted July 24, 1912, to another division of this hospital. Temperature was 103; pulse 100; respirations 29. Three days prior to admission a soft rubber catheter had been passed into the bladder, and for the last twenty-four hours patient had had some trouble in voiding urine. The history was unsatisfactory and indefinite. The patient had complained of no lesion about the anus. Scrotal swelling had appeared within the previous forty-eight hours. Patient was well nourished and well developed, but appeared very toxic. The lungs showed dulness and fine crepitations at both bases posteriorly and bubbling râles were heard throughout them. The heart sounds were of only fair quality.

Local Condition.—The scrotum was about four times its natural size, red, shiny and rather tense. The swelling was elastic and fine interstitial crepitus could be felt throughout the scrotal tissues. No fluctuation was present. There was an erythematous, indurated area with well-marked and slightly raised border extending out toward the ischial tuberosities on each side of the anus, forward on the perineum and upward on the pubes, and for a short distance on the inner side of each thigh. Catheter No. 20 F could be introduced into bladder without difficulty.

The operation was twelve hours after admission in another surgical division of this hospital and consisted of a free anteroposterior incision in the scrotum on each side of the median raphé, with a free median perineal incision. The scrotal tissues were found to be infiltrated with small gas bubbles and a dark reddish fluid of a disagreeable and characteristic odor. *B. aerogenes capsulatus* was found in smear and culture. Blunt dissection into the crepitant tissue was performed with hydrogen peroxid irrigation and the wounds were lightly packed with peroxid-soaked gauze. The patient was transferred to the service of Dr. R. S. Hooker. Some hours later, owing to the extension of the crepitus upward to each inguinal region and backwards over each ischial tuberosity, incisions were made in those regions and connected with the scrotal and perineal wounds, respectively, by undermining the intervening skin. Irrigation with peroxid and packing with peroxid-soaked gauze were repeated.

During the next five days the temperature was normal, the dressings were changed frequently and kept moist with peroxid. Although there was some sloughing of the scrotal tissue between the two lateral incisions, the induration decreased and there was almost complete subsidence of the gas bacillus infection. The edema of the lungs increased steadily, with only one period of temporary improvement, and the patient died five and one-half days after admission.

CASE 6.—W. R., an Italian boy, aged 5½, was admitted Dec. 15, 1912, at 6:30 p. m., to the service of Dr. John B. Walker. The patient was in shock suffering from a fracture in the upper third of the left femur, and a severe crushing, without open laceration of the left leg below the knee. The right thigh showed a compound supracondylar fracture of the femur and extensive crushing and laceration of the right leg below the knee. The patient had been run over by a wagon. The wounds were irrigated with a diluted aqueous solution of tincture of iodin; dressings and splints were applied and efforts made to counteract the shock. Temperature was 98; pulse 162; respirations 42.

December 16: The patient was very restless and fretful; some bloody discharge was on the dressings. At 8 a. m. temperature was 98; pulse 152; respirations 40. At 8 p. m. temperature was 102; pulse 162; respirations 42.

December 17: Temperature 104; pulse 164; respirations 42. When the dressings were removed a thin, reddish fluid with a disagreeable odor came from the lacerated wounds on the right leg. No interstitial crepitus could be felt. No circulation was present below the right knee. With a commencing gangrene of the leg and the strong probability of gas bacillus infection it was thought advisable to amputate above the supracondylar fracture in the right femur. This was done and smears taken, not only from the lacerated tissues, but also from the cut muscular surface of the amputated leg. Both showed the presence of *B. aerogenes capsulatus*, though examination afterward of the amputated leg showed gas bubbles only in the deeper calf muscles. No reddish fluid or gas bubbles were present at the site of amputation. On account of the presence of the gas infection at the amputation site the stump flaps were opened up and packed with peroxid-soaked gauze.

December 18: interstitial crepitus was found in the stump. The affected areas were opened and irrigated with peroxid. Temperature was 103; pulse 150; respirations 28. The patient was delirious at the time and very weak.

December 19: There was an extension of interstitial crepitus in the stump, a free incision under nitrous oxid anesthesia was made, and peroxid irrigation used. By December 25 all interstitial crepitus had disappeared and healthy granulations were appearing. The left leg showed dry gangrene below the knee. The patient's general condition had improved, though he was much emaciated. Two weeks later amputation at the middle of the left thigh was performed for deep infection of the left leg which had developed in the dry gangrene and had spread to the knee. From this time on the patient improved steadily and by Feb. 2, 1913, the afternoon temperature reached only 100. The left stump healed by primary union and the right stump by healthy granulations about the protruding end of the cut femur, which shortly afterward was removed under ether anesthesia, the wound healing by granulation. The patient was discharged for further treatment in the country. When seen last on March 23, 1913, there was a small area of healthy granulations on the right stump and the general condition was excellent. For permission to report the cases, I am indebted to Drs. Hotchkiss, Walker and Hooker, of this hospital, and further to Dr. Hooker, for his kind assistance in the preparation of these notes.

A CASE OF TUMOR OF THE HYPOPHYSIS

PARTIALLY REMOVED BY THE TRANSFRONTAL METHOD OF APPROACH

CHARLES HARRISON FRAZIER, M.D.
AND
JAMES HENDRIE LLOYD, M.D.
PHILADELPHIA

MEDICAL NOTES BY DR. LLOYD

The following case occurred recently in my wards at the Philadelphia General Hospital. As a hypophyseal case it is noteworthy for two things, namely, the presence of marked pressure or "neighborhood" symptoms, and the absence of a distinct cachexia either of acromegaly or of the dystrophia adiposogenitalis. The patient was neither infantile nor acromegalic; he was not overgrown or undergrown; he was neither too fat nor too lean; neither too large nor too small; his sexual organs were normally developed and he did not have a "hypotrichosis" either of his face or of his pubes; he had no craving for sweets, nor had he any diabetes or polyuria, and his temperature range was normal. What he did have was rapid onset of blindness with headache and vomiting, and he presented, under the Roentgen ray, the evidence of a pituitary tumor. In addition to headache he had at various times, as will be seen in the clinical report, severe pains in the limbs (and even in the chest); and to these pains, as an unusual feature, we invite special attention. Somewhat similar pains have been reported in acromegalia; thus Cushing, in one of his cases, describes pains in the limbs, in the active period of overgrowth, as somewhat like growing pains. Whether such pains may really be referred pains, caused by pressure on or irritation of the cerebral peduncles, is a subject worthy of consideration. In this connection it may be well to recall the fact that referred pains are sometimes observed in lesions in other basal structures, as for instance in the optic thalamus. Pain in the paralyzed limbs has also been observed in hemiplegia even before the attack. In the partial obscurity which still shrouds the course of the pain fibers, it is impossible to do more than to theorize about the relation of these clinical facts with the facts of anatomy, but to me it is conceivable that a pituitary lesion might, by pressure, as by a hydrocephalus, cause involvement of these pain-tracts as they pass cephalad. Their course is doubtless through the cerebral peduncles and the optic thalami.

Patient S. W.—Russian, aged 21, was admitted Aug. 27, 1912. Family history was negative. The patient came to the United States from Russia in 1911. He is a fairly well-developed young man. He used alcohol and tobacco moderately and denies venereal infection. He had always been in good health up to the onset of his present illness.

Present Illness.—This began in August, 1911, when the patient was suddenly seized with violent headache, more marked on the right side, and repeated vomiting spells. The vomiting was propulsive, not preceded by nausea, except sometimes for a few moments, and occurred irrespective of eating, as a rule. This headache with vomiting lasted for several weeks and then ceased rather suddenly. After this illness the patient noticed that his vision was becoming hazy and that he saw double. He then began to have shooting pains in his right shoulder and arm, attended with tremor and convulsive movements of this limb. These movements do not seem to have been epileptic. At this time he received glasses at the Wills Eye Hospital, where a diagnosis was made of chorioiditis of the macular region. In June, 1912, the patient had another attack of headache and vomiting, not so severe as the former. After this second attack his vision failed still more until, on admission to the Philadelphia General Hospital, he could see only a little out of his left eye, and at best could only tell the difference between light and darkness. He said, also, that he had had a staggering gait since his first attack of headache.

Examination.—The patient was seen to be a fairly well-nourished young Hebrew. His musculature was rather poorly developed, but there was no excessive adiposis. His sexual organs were well developed and he had hair on his face and pubes. His gait was steady, without swaying or staggering, although somewhat uncertain because of his blindness. He was not paralyzed in any of his muscles. The knee-jerks were normal; Babinski reflexes absent; skin reflexes normal; sphincters not involved. The patient's mentality was good. The eyes were examined by Dr. Shumway, who made the following report: Double optic nerve atrophy probably following optic neuritis. The edges of the nerve-heads were obscure; the arteries very narrow; veins of good caliber. The nerve-heads were filled in from inflammatory changes. The eyes were entirely sightless and there was no pupillary response. The ocular movements were well performed; the eyeballs, at rest, slightly divergent.

After admission to the hospital the patient had a great deal of headache, coming and going, with attacks of cerebral vomiting. These attacks, and his blindness, constituted practically the whole of the symptomatology for a long while. The patient preferably remained in bed, lying on his back, often holding his hand to his head; but he had free use of his limbs and could arise and walk if requested. His mental state continued good and he had no speech defects. It is especially noteworthy that he occasionally complained of pains in his legs; these pains, taken in conjunction with similar pains which he had had in his arms before entering the hospital, and with the severe pains which he had in his arms and chest after the operation, as will be seen, may have more than usual significance. The patient never had an epileptic attack, nor any uncinate or olfactory aurae.

On one occasion the patient had pain in his right ear and under his right eye, followed by a slight chill and a little discharge from the ear. There was no tenderness or redness over the mastoid, but slight tenderness in front of the tragus. The attack passed by under the care of Dr. Grayson.

The heart, lungs and kidneys were normal. There was no polyuria.

The patient did not present the appearance either of acromegaly or of dystrophia adiposogenitalis.

The examination of the blood and cerebrospinal fluid gave the following result: The Wassermann test was negative in both. The cerebrospinal fluid was negative to the Nonne and Noguchi tests; no lymphocytosis.

The roentgenogram revealed the following condition: The floor of the sella turcica was entirely destroyed. A portion of the posterior clinoid processes remained and showed indistinctly. The appearance suggested that a tumor mass extended into the sphenoid sinus. There was also evidence of intracranial pressure in the fact that the cranial sutures were more or less separated.

It was unfortunately too late, when this patient was admitted to the Philadelphia Hospital, to take his visual fields. In these cases, as is well known, a bitemporal hemianopsia is sometimes seen in the early stages, caused by pressure on the optic chiasm. Other forms of hemianopsia, as a blotting out of the superior halves, have been noted.

SURGICAL REPORT BY DR. FRAZIER

Through the courtesy of Dr. Lloyd, the patient was transferred from the Philadelphia General Hospital to my clinic at the University Hospital, where the operation was performed. The roentgenogram showed such undoubted structural changes in the sella turcica that there could be no doubt as to the seat of the lesion, although most of the symptoms peculiar to pituitary lesion other than involvement of the tract were conspicuous by their absence.

In preparation for the transfrontal approach to the hypophysis by the route which has been adopted in my clinic, the size of the frontal sinuses is studied in the roentgenogram and by transillumination, and if one sinus is smaller than the other, this determines the side on which the operation is performed. From a comparative study of the methods of determining the size of the sinuses by transillumination and with the roentgenogram, we have found the former very much more reliable or, to be more accurate, I have found the roentgenogram quite misleading and not to be relied on.

The following is a description of the operation:

Under intratracheal anesthesia an incision was made beginning at the external angular process following the curve of the supra-orbital ridge to the median line. The second limb of the incision extended upward exactly in the median line 1 inch within the hair-line and the third limb ran within the hair-line down to a point on a level with the external angular process. The inner margins of the incision were dissected free for ½ to ¾ inch, a section of the frontal bone was made with the spiral osteotome, and an osteoplastic flap reflected, exposing the frontal lobe. In fashioning the flap care was taken to avoid opening the frontal sinus which in this case extended ¾ inch from the median line, and an equal distance above the supra-orbital ridge. With a Hey saw the supra-orbital ridge was sectioned obliquely, so that the piece to be resected was wedge-shaped. This is an essential step in the technic from the cosmetic point of view, as when this wedge-shaped piece of bone is replaced the contour of the supra-orbital ridge is preserved; the bone fits snugly in place and by its shape cannot be displaced below its proper level. With a pair of forceps the supra-orbital ridge thus sectioned was grasped and wrenched free, carrying away with it a portion of the wall of the orbit. What remained of the orbital roof was removed with rongeur forceps down to, but not including, the roof of the optic foramen. With two retractors, one in the hand of the assistant, the orbital contents were displaced somewhat downward and outward and the frontal lobe elevated. (I have found that, if the dura is punctured as soon as it is exposed, the continuous escape of cerebrospinal fluid facilitates the elevation of the frontal lobe.) The patient's head was now in the Rose position and, with artificial illumination, I selected a point in the dura at which to make a horizontal incision 0.5 cm. above the base of the skull from one anterior clinoid process to the other. The retractor was passed through the dural slit and, by gentle upward pressure, I laid bare a soft, reddish-gray mass which filled the sella turcica. This was removed in part. The bone flap was then replaced, a small wick of gauze introduced into the posterior angle, and those edges of the wound not within the hair-line were closed with great precision.

The operation was not attended with any special difficulty and confirmed the opinion I had already entertained as to the ease with which the sella could be uncovered. During the period of convalescence there was a marked edema of the face and somewhat of the neck on the affected side. Whether or not this is due to the escape of cerebrospinal fluid into the cellular tissue, I do not know, but whatever the cause may be, this phenomenon is not peculiar to this operation, as I have observed it in a number of operations where the flap is reflected from the frontal rather than the parietal region.

Dr. Lloyd has already made an interesting comment on the pains of which the patient complained before the operation. After the operation he complained more or less bitterly off and on for two weeks — less as the time went on — of pains in his extremities, but especially in the thorax at the base of the chest. These pains were the most conspicuous and the only feature of interest in the postoperative period. The patient was allowed to get up one week after the operation and was discharged from the hospital three weeks later. During this period some observations were made on the effect of pituitary feeding on the blood-pressure. Systolic pressure had been unusually low before, during and after the operation, varying from 90 to 95 mm. Hg. Under the continued use of pituitary extract in ascending doses there was not the slightest variation in the blood-pressure. Negative results were obtained also from the use of epinephrin. On several occasions during these observations there were sudden and unaccountable rises in temperature. The histologic examination of a portion of the specimen removed showed it to be a sarcoma with telangiectatic characteristics. Unfortunately the advanced stage of atrophy of the optic disks precluded the possibility of any improvement in vision.

In closing, I should like to emphasize the many advantages which the transfrontal operation has over the transsphenoidal methods. The facility of exposure, the opportunity of determining with some degree of accuracy the extent of the tumor, the avoidance of such contaminating influence as the secretion of the nasal mucosa, the splendid cosmetic results; these and other minor considerations should be given credit when any comparison of methods is made. To be sure, I have only applied the method to four cases, but in each of these the results were equally satisfactory and there were *no fatalities.*

1724 Spruce Street—116 South Twenty-First Street.

THE INVARIABLE BLOOD-STAIN

B. G. R. WILLIAMS, M.D.
PARIS, ILL.

For years I have used in my laboratory a method for the staining of blood-films which has proved so satisfactory from all points of view as to have earned the term "invariable." The idea is not original with me, but is based on two well-known principles, combined, modified and finally perfected. First of all, single films are best fixed by burning in absolute alcohol; a proper mixing of eosin with Ehrlich's acid hematoxylin gives an excellent stain, one which proved its worth before the panoptic formulas became so popular.

This method is especially suited to the needs of the general practitioner, the man who desires invariable results and who cannot become proficient in technic. Certain men, who do considerable blood work, are now using the "invariable" almost routinely. Several of these have prevailed on me to publish the formula and technic; and this will perhaps justify the addition of another to the several dozen good ones now in general use.

FORMULA AND TECHNIC

This stain does not fix. Briefly, it consists of a nuclear part, a special hematoxylin, and a cytoplasmic part, water soluble eosin. In 312 c.c. of a 3-months' ripened Ehrlich's hematoxylin, 0.1 gm. of the eosin is dissolved and the mixture filtered, if necessary. It is now ready for use, and, if tightly corked, may keep indefinitely, even improving with age. The mixture will appear rather thick, but if it becomes too thick a few drops of absolute alcohol may be added.

The technic is simple: Merely fix with burning absolute alcohol, and, after cooling, immerse the preparation in the stain for fifteen minutes. Then wash in tap-water and dry. First of all light a burner (this insures prompt ignition of the alcohol before any of the erythrocytes suffer injury), seize the slide bearing the dried film and, with suitable forceps, hold with film face upward. Quickly cover with absolute alcohol. Shake off excess and then ignite in the flame, removing preparation immediately from the flame. The alcohol will flash off, leaving a dry and perfectly fixed film. Ignition must be prompt and alcohol absolute.

Permit the slide to cool and then place in Coplin jar filled with the "invariable." After fifteen minutes, remove the slide and wash in tap-water. Dry between blotters or by gentle heat according to standard methods. Staining solution may be used many times.

ADVANTAGES OF THE METHOD

1. The presence and precise nature of all anemias, leukemias and leukocytoses may be determined by use of the invariable stain. Eosinophilia in parasitic diseases, as well as basophilic alterations in plumbism, may be easily demonstrated. This completes the qualifications demanded of any stain so far as every-day work is concerned.

2. This staining method is reliable as well as rapid. The Wright's method is rapid, but not reliable, and this objection holds with men who do considerable work. I have seen many a poor Wright's stain in some of our best laboratories. For routine work, the physician can scarcely afford to waste time on a method which is not invariable. Unless he does considerable blood work, he will meet trouble with the Wright's technic. More than this, he will need to supply himself with many films in each case, for unless he is expert or lucky, he will not always be successful. I consider Wright's method the best of the popular formulas, but it should be used only when staining for the plasmodium, or in other special blood studies, especially when controls are needed.

3. Of all nuclear stains, this is the most beautiful. The nuclear figures are clearly cut and deeply stained.

4. Of all methods of blood-staining, this is the simplest. The technic is so easily applied that the first attempt is as successful as subsequent attempts. Laboratory skill counts for but little, and a failure amounts almost to an acknowledgment of stupidity.

109 East Court Street.

FURTHER NOTES ON TRANSFUSION BY MEANS OF GLASS CYLINDERS

A. R. Kimpton, M.D., Boston

An article entitled "A New and Simple Method of Transfusion" appeared in The Journal recently. The following case is reported to show further the advantages of this method.

History.—A man aged 37 was knocked down by an automobile, receiving a compound fracture of the skull with crushing trauma of the brain. As I am reporting this case in order to bring out the technic of the transfusion I shall not enter into the details except to say that the patient had lost a large amount of blood and suffered from very severe shock, and that from a therapeutic point of view the transfusion was gratifying. The head injury had been operated on by Dr. A. L. Brown of Winchester, Mass., with whom I saw the patient.

Transfusion.—A tourniquet was applied on the upper arm of the donor only tight enough to give venous congestion. Under cocain a superficial vein just below the elbow was exposed through a 1½-inch incision. This was tied off proximally, and a Crile clamp was applied distally. A similar vein was exposed in the recipient's arm. This was tied off distally, and a Crile clamp was applied proximally. With a cataract knife a slit was made in the vein of the recipient. A similar slit was now made in the vein of the donor; the clamp was opened, and a cannula of a 250 c.c. cylinder was inserted. This cylinder filled in less than two minutes (actual time was not taken). When filled the cannula was withdrawn and the clamp closed. The clamp on the vein of the patient was immediately opened, the cannula of the cylinder inserted and the cylinder emptied. A second cylinder (100 c.c.) was now filled from the same opening in the donor's vein and emptied into the same opening in the vein of the recipient. Two or more large cylinders could have been used if desired.

Remarks.—It is at once seen that this is an easy and certain performance, but it is justifiable to remark that one must understand the proper exposing and handling of blood-vessels to do it successfully. The technic is so simple that it is not necessary to have assistants trained in blood-vessel work, but the operator should be familiar with the technic of blood-vessel surgery. It is also justifiable to say that a failure probably means an error in technic.

Transfusions by vein-to-vein anastomosis have, of course, been done frequently, but the method has the difficulties and uncertainties of other direct methods. This method with glass cylinders, at least in my own hands, has proved certain and easy.

86 Bay State Road.

---

[1] Kimpton, A. R. and Brown, J. Howard: A New and Simple Method of Transfusion, The Journal A. M. A., July 12, 1913, p. 117.

AN IMPROVED METHOD OF EXTRACTING OVA FROM STOOLS

H. L. McNeil, M.D., Houston, Tex.
Pathologist to the Southern Pacific Hospital

Not having seen any mention in the literature of the following method since it was first published by Yavita[1] some months ago, and since I have had such excellent results with it, I feel that another mention of it will be of value.

The technic which I have employed for the past four months, slightly modified from Yavita's, is as follows:

A particle of the stool, about the size of a cherry, is placed in a test-tube. To this are added 5 c.c. of a 25 per cent. mixture of antiformin. This is mixed well and warmed over a flame, but not boiled. Five c.c. of ether are then added and the whole shaken well. It is then filtered through one layer of gauze and centrifuged one minute (water centrifuge). Four layers are formed. In the lower layer the eggs are found.

This method is excellent, also, when one is dealing with a fluid or semifluid stool. I have found it valuable in detecting hookworm ova in stools, the capsule of the egg not being injured in the least by the mixture. I have found it superior to the method which Dock and Bass recommended, as it requires less time, and there is less residue thrown down with the ova.

2612 Smith Street.

Apomorphin Hydrochlorid in the Vomiting of Pregnancy and in Nausea Generally.—Having under my care at one time a patient with a severe case of vomiting of pregnancy in which various treatments had been tried but without result, I tried apomorphin, giving 1/36 grain in a teaspoon of water. The vomiting ceased and was thereafter controlled entirely by 1/36 grain in water. This was about two years ago. Since then I have used it frequently, not only in the vomiting of pregnancy but in other cases of vomiting or nausea in which an antiemetic was indicated and always with decided results. In the minute quantities used it quiets the inflamed gastric mucous membrane with no ill effects and in so doing we have a better chance to apply other remedies needed to remove the cause.—Merton Field, M.S., M.D., Canby, Minn.

---

[1] Yavita: Deutsch. med. Wchnschr., 1912, xxxviii.

MANOMETER AND SAFETY-VALVE FOR USE IN THE OPERATION OF ARTIFICIAL PNEUMOTHORAX

Lewis Sayre Mace, M.D., San Francisco

I wish to describe a simple and easily made manometer and safety-valve which I have found useful as an addition to the usual Forlanini apparatus which is used in the operation of artificial pneumothorax in lung tuberculosis.

This consists of a liter Erlenmyer flask having a three-holed stopper. Two glass tubes are arranged as in an ordinary wash-bottle, and through these tubes the gas is passed through warm sterile saline solution before its introduction into the pleural cavity. The third is a perpendicular tube open at both ends, by means of which the operator is enabled to read the intrapleural pressure at any moment while the gas is being introduced.

This manometer tube has an opening at a certain height above the level of the saline solution in the flask, so that if at any moment during the operation the positive pressure should rise to a dangerous height the liquid will overflow and no more gas can be injected until the pressure falls.

There are several advantages in passing the gas through the wash-bottle manometer before introducing it into the pleural cavity. The gas is warmed and moistened by passing through the warm saline solution and is less likely to cause unpleasant sensations and so-called pleural reflexes. There is no necessity for switching the manometer on and off during the operation, for the pressure, both positive and negative, is constantly before the operator.

On account of the ever-present danger in these operations of high intrathoracic pressure with the possibility of gas emboli resulting, the safety-valve feature of this manometer is most important.

It is surprising in using this apparatus how often one becomes aware of sudden rises of intrapleural pressure due to coughing or deep breathing of the patient. These sudden rises are most often noticed in those operations complicated by pleural adhesions, and in these cases it is practically impossible to avoid occasional high pressure except by a safety-valve of the kind I have described.

The wash-bottle manometer has still another use which in some cases becomes an important one. Should too much gas be injected and symptoms of dyspnea and cardiac pressure occur, it may easily and quickly be transformed into a syphon by changing the direction of the wash-bottle tubes and closing the manometer tube and withdrawing the necessary amount of gas.

240 Stockton Street.

A CASE OF PROLAPSED CORD

Horace Eddy Robinson, M.D., New York
Assistant Physician to the Outpatient Department, Bellevue Hospital

From the point of view of the general practitioner, prolapsed cord is a serious complication and one which is liable to be met at any time. The following case is therefore of sufficient importance and interest, I believe, to justify its report. The patient, Lena C., a primipara aged 20, was examined during the eighth month and found to be in normal condition. She went into labor at term about 9 p. m. Labor progressed favorably until 10:45 the following morning, when the membranes ruptured. The patient was immediately put to bed, and it was noted that the cord was in the vagina. The knee-chest position was immediately assumed, and an unsuccessful attempt at replacing the cord was made. Cord pulsation was 132 and fairly strong. The patient was instructed to remain in the knee-chest position. Morphin was given, and assistance sent for. Following a second injection of morphin the pains were greatly reduced in frequency and strength. Assistants did not arrive until 12:10 p. m. During this period, the patient had remained in the knee-chest position and counter-pressure was exerted against the vertex by means of the examining fingers in the vagina. At this time she was put on the table and anesthetized. Version was performed, and without difficulty a living child was delivered at 12:43 p. m. Mother and child made an uneventful recovery.

SUMMARY

Membranes ruptured, prolapsing cord at 10:45 a. m.; patient immediately assumed knee-chest position; uterine contractions were controlled by morphin; counter-pressure on vertex relieved compression of cord. Just prior to version, the cord pulsation was 110, showing a drop of twenty beats per minute. Handling of cord was avoided as much as possible. Child was delivered two hours after prolapse, and was resuscitated without great difficulty.

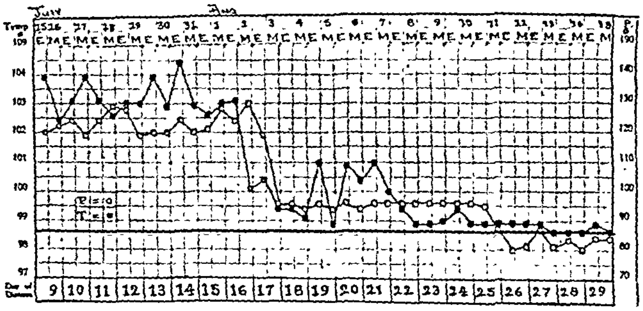
11 West Eighty-Eighth Street.

A SPORADIC CASE OF TYPHUS FEVER

Harold Hastings Newman, A.B., M.D., Washington, D. C.

At the meeting of the Association of American Physicians, in Washington, May 6, 1913, Dr. John F. Anderson,[1] Director Hygienic Laboratory, United States Public Health Service, called the attention of the medical profession to the existence of typhus fever in Boston and New York. He expressed the opinion that typhus fever was unrecognized in other large American cities and stated, "the possibility should ever be borne in mind that it may acquire virulence and epidemic prevalence." On account of the preceding statements, I report the following case of typhus fever.

Patient.—A. C., a girl aged 12, of Bohemian parentage, had attended school in Baltimore, at the House of the Good Shepherd, from December, 1912, till March, 1913. She had lived on a farm in the District of Columbia during the past year. The family and personal histories are unimportant. The present illness began Friday, July 18, 1913, with severe symptoms, including intense headache, which continued. On Tuesday, July 22, the patient was seen by a physician. She had a macular rash and a temperature of 104.8 F. The physician's impression was that it was a case of typhoid fever. Wednesday, July 23, another physician saw the patient and said she had a "rash." Her temperature ranged from 104 to 105 F on this and the next day. The attendant gave the opinion that it was scarlet fever. The patient was sent to the scarlet-fever ward of the Garfield Memorial Hospital Annex, Friday, July 25.



Pulse and temperature record in case of typhus fever in girl of 12, ending in pseudocrisis on sixteenth day of the disease.

Examination.—The patient suffered from severe headache and great prostration. She was hyperesthetic, crying out at even gentle touches of her body. Her hair was infested with "nits." Her ears were negative as to signs. The conjunctivae were congested. There was no nasal discharge. The soft palate was slightly reddened and showed several small (3 mm.) ecchymoses. Her tongue was coated and the pharynx was faintly injected. The lymph-nodes were not enlarged. Signs in lungs and heart were negative. She had no cough. The liver and spleen were not palpable. The deep reflexes were normal. Kernig's sign was suggestive. The neck was not rigid. Over her entire body, more marked over the dependent areas, was a macular rash, with the macules about 3 mm. in diameter, rusty colored and unmodified on pressure. Blood examination showed hemoglobin, 85 per cent.; red blood-cells, 4,500,000; white blood-cells, 5,360. Widal negative. Dr. Goldberger of the Public Health Service made a blood-culture and an intraperitoneal inoculation of a guinea-pig, with negative result. The negative reaction in the guinea-pig is not unusual, Dr. Goldberger finds. The stool examination and culture for typhoid bacilli were negative. Urine examination was negative except for positive Diazo.

---

[1] Anderson, John F.: The Problem of Typhus in the United States, The Journal A. M. A., June 14, 1913, p. 1845.

Course of Disease.—The patient had a continuous remittent fever which ended in "pseudocrisis" on the sixteenth day of the disease. This and the pulse-rate are shown on the accompanying chart.

Tuesday, July 29, dusky mottled-appearing macules were first noted on the face and neck. On this day some petechial macules were noted, among others on the feet and buttocks. Next day, the petechiae were numerous and diffuse over the body, especially over the elbows. With the temperature fall on Friday, August 2, the rash began to fade. By August 13 it had disappeared from the body, remaining faintly on the face and neck, and soon was invisible.

The case, typical typhus fever, was a puzzling one for a time. Various diagnoses were offered, namely, typhoid fever, scarlet fever, measles, cerebrospinal meningitis and Henoch's purpura. My experience in this case leads me to agree with Dr. Anderson that unrecognized typhus fever is prevalent. I hope this example will stimulate the medical profession to watch for such cases.

The diagnosis in this case was confirmed by Drs. Louis Mackall, H. P. Parker and by Drs. John F. Anderson and Joseph Goldberger of the United States Public Health Service.

Garfield Memorial Hospital.

A Case of Exophthalmic Goiter Apparently of Syphilitic Etiology.—T. W., a man aged 34, married, contracted syphilis six years ago, for which he was treated by iodid and mercury. He persisted in this treatment for two years and to all intents and purposes was cured. One year ago last June he developed the classical symptoms of exophthalmic goiter. He then consulted his family physician, who used mercurial medication with no appreciable benefit. This practitioner informed me that while under his care the patient's pulse varied from 120 to 160 per minute. He next consulted a local doctor and received a little benefit from his treatment, so that when he consulted me May 19, 1913, his pulse-rate was 103 per minute. The exophthalmos was the most prominent symptom. The patient's eyeballs protruded so markedly as to be startling and the goiter was about as large as an English walnut. He had only a slight tremor. On July 1, when I administered 0.6 gm. salvarsan intravenously, his condition was the same. July 18 his pulse was 94. Five days later he received a second injection of salvarsan of the same amount and on July 28 a third. August 1 his pulse was 86 per minute and the exophthalmos had quite noticeably diminished. He received a fourth and last injection on August 4. August 14 his pulse was 83. The last time I saw the patient, August 26, after sitting quietly for fifteen minutes, his pulse was 80 and he had no exophthalmos. The tremor, too, had disappeared. The appearance of the mucous membrane had improved markedly as a result of the treatment, the drug having acted as a hematinic in his case.—Harold J. Levis, M.D., Rochester, N. Y.

Cancer and the Surgeon.—I am, of course, well aware that all cases of cancer of the stomach, unhappily, do not come to the surgeon. No one but the surgeon can do any good to patients so afflicted. Yet there is a strange timidity of approach to the surgeon which is unaccountable, and far too often the favorable period in the history of a case is allowed to slip away before any recognition of the real conditions is attempted.—Sir Berkeley Moynihan, Address in Surgery, Brit. Med. Assn., 1913.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

AGGLUTINATING SERA FOR DIAGNOSTIC PURPOSES.—These are the sera of animals (horses) immunized against various bacteria. The serums are dried and powdered and marketed in packages containing a definite weight of the powder. For use the powder is dissolved in water to make a solution of a definite strength which constitutes the agglutinating titer. This solution is added to a suspension of the bacterium to be tested, and after incubation for a certain period the mixture is examined. The clumping of the bacteria may be determined microscopically by observing whether the bacteria have sunk to the bottom of the container or the process of agglutination may be watched under the microscope.

H. K. Mulford Co., Philadelphia, Pa.

Agglutinating Serum for the Identification of Bacillus Paratyphosus A.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 20,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Agglutinating Serum for the Identification of Bacillus Paratyphosus B.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 50,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Agglutinating Serum for the Identification of Bacillus Typhosus.—Marketed in sealed ampoules containing each 1 gm. of the dried serum having the agglutinating titer 1 to 24,000. Intended for use by the macroscopic method, the reading being taken after 24 hours.

Therapeutics

TYPHOID FEVER

(Concluded from page 1537)

TREATMENT OF THE FREQUENT COMPLICATIONS

The only complications that will be here discussed are failure of the circulation, insomnia, intestinal hemorrhage and perforation.

Very generally, if a typhoid patient is properly managed, the heart will not be very rapid and the pulse tension will be good for the first two weeks without any artificial assistance, and the heart may be all right throughout a mild attack without such assistance. The cup of coffee in the morning gives a caffein stimulation to the heart, and if it has been accustomed to such stimulation it is certainly good treatment. In children, who are not used to coffee or tea, a cup of tea occasionally may be of medicinal value.

Alcohol should of course never be used as a cardiac stimulant. On the other hand, in small doses, as above stated, it may be used as a nutriment. In such small doses it probably has very little effect on the circulation. At times, if the patient has been used to considerable daily amounts of alcohol, it may be advisable not to stop it, much as we would not stop a morphin habit during an acute illness. At times there can be no question (and those who deride the use of alcohol in typhoid fever have no justification in disputing the fact) that with a high, bounding pulse, flushed face, dry skin, rapid heart, and heavily coated tongue, sometimes the proper dose of alcohol will lower the blood-pressure, dilate the peripheral vessels, cause perspiration and more radiation of heat, and relieve the troubled heart, and at the same time moisten a dry tongue and improve the general condition. On the other hand, the majority of patients do not need alcohol, and if too much alcohol is given the reverse of the above good condition occurs; the patient is excited both cerebrally and circulatorily by the alcohol, and its activity is harmful. It cannot be too strenuously urged, however, that when a heart fails and the blood-pressure is low, alcohol should not be given, as it will render the condition worse.

The most overused to-day of all drugs is strychnin, and part of its overuse occurs in typhoid fever. It has been shown that it generally does not raise the blood-pressure in serious illness, even in large and frequent doses. Therefore, in acute heart failure, large doses should not be given. If there is cerebral excitation, sleeplessness, restlessness, and nervous irritability generally, strychnin is certainly contra-indicated, and many times it is the cause of the typhoid patient being restless and sleepless. If there is a so-called "typhoid state," with more or less tendency to stupor, with sluggish nerve centers, strychnin is doubtless the drug of choice. It is perhaps wise, when the pulse tension flags from lack of tone of the muscular contractions of the heart in the third or fourth week of typhoid fever, to begin small doses of strychnin, as tending to activate all of the nerve centers, and in small doses to stimulate the heart to proper activity.

It is rarely advisable to give more than 1/30 of a grain of strychnin once in six hours, although, if deemed advisable, such doses may be administered hypodermatically. It will not save a heart that is going to fail; on the other hand, it may cause a heart to become irritable and rapid, the heart not seeming to have its normal diastole and rest. At the same time it stimulates, in large doses, the central nervous system to the disadvantage of the whole organism.

It is not the purpose of this article to discuss the whole subject of the treatment of cardiac failure, but suffice it to say that perhaps in pituitary extract[4] we have a preparation (which is presented to us in aseptic ampoules) that when administered hypodermatically may be of marked advantage in these cases of heart failure. The action of glandular extract is of more value for such cases than is the suprarenal extract.

The value of camphor as a nervous and cardiac stimulant is now pretty generally understood. Proper preparations of camphor may be administered hypodermatically, or it may be given in one of the well-known preparations by the mouth.

Sleeplessness in typhoid fever, especially during the early stages, is a frequent complication; but, to reiterate, the proper management of the bowels, the proper management of the room, and the institution of more or less open-air treatment (at least plenty of fresh air from open windows), the regulation of the diet, and the withholding of any unnecessary stimulant drug will generally allow these patients to sleep without any medication. An absolutely sleepless patient, however, must be made to sleep, and perhaps a few doses of sodium diethyl-barbiturate,[5] sold as medinal and veronal-sodium, each dose consisting of 0.20 to 0.25 gm. (about 3 or 4 grains), will cause a normal sleep habit. If there is marked cerebral irritation, a dose or two of bromid or of chloral may be necessary. None of these drugs should be long repeated, and it is rarely necessary. If the circulation is weak and the patient sleepless, the safest drug is morphin, and the dose need not be large. One-eighth of a grain, or less, given hypodermatically, is ample.

Hemorrhage from the intestine requires the administration of a sufficient dose of morphin hypodermatically to stop peristalsis, and 1/8 of a grain is generally sufficient, and perhaps best combined with 1/150 grain of atropin, with the withholding of all food for at least twenty-four hours, the administration only of such water as is needed for the patient's comfort, and the application of an ice-cap or cold coil to the abdomen. If the patient shows serious anemia from loss of blood, transfusion of blood must be considered, and perhaps surgical interference.

With a diagnosis of perforation of the intestine immediate operative interference is the only treatment, and the success from such immediate operation is constantly on the increase, showing that such a procedure is not only justifiable but advisable.

CONVALESCENCE

A convalescent patient, who has been on the preceding diet, does not show the emaciation that we used to see when the typhoid patient was either starved or on an absolute milk diet. The increase in the diet should for a time not be great, as he has been having most of the kinds of food that he needs. The main object is gradually to increase the amount at regular meal times and let the intermediate feedings be of less importance and contain less nutriment.

The patient should not be raised on several pillows, and certainly should not be allowed to sit up, until his cardiac strength has returned. There is no safer estimate of such strength than a pulse that does not become rapid when he turns or moves, and perhaps he should not sit up at all until his blood-pressure is above 100 mm. at least, of course, the desired blood-pressure depending on the age of the patient. Many a continued weak heart and circulation has occurred from a seriously ill patient being allowed to sit up or walk around too soon; and the same is true of allowing him to work too soon.

These patients generally have a good appetite. If they do not have appetite, they may be given some simple bitter tonic. Perhaps one of the most essential elements that they need is calcium, and it may not be better offered than in the form of the calcium glycerophosphate, in powder or capsule, in 0.30 gm. (5-grain) doses, three times a day, after meals. If the patient has not been taking iron, he should receive iron in any simple form, perhaps in the form of the *Eisenzucker,* as above suggested.

If relapses tend to recur, and if after a sufficient length of time for complete normal eradication of typhoid bacilli the feces or urine continue to show such, the patient should be inoculated with dead typhoid bacilli, as previously suggested. Also, it is quite possible that the administration of hexamethylenamin should be continued, or if it has not been given, should be begun during the convalescent period.

It is very important to remember that as soon as a typhoid patient has recovered he should see his dentist and have his teeth carefully examined, all cavities filled, and any tendency to pyorrhea prevented.

The care of the mouth during the fever has not been described, as it is presumed that proper cleanliness and proper treatment of ulcerations are part of the hygiene of a typhoid patient.

---

[4] N. N. R., The Journal A. M. A., June 21, 1913, p. 1937.

[5] New and Nonofficial Remedies, 1913, p. 78.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 1, 1913

RENAL DIABETES

Although the existence of glycosurias due to changes in the kidneys, particularly as a result of the administration of drugs like phloridzin, is well established in an experimental way, as much cannot be said in respect to the clinical cases of glycosuria which occur in man. The possibility of a renal diabetes involving an increased permeability of the kidneys analogous to phloridzin glycosuria has been suspected and has found advocates at various times since the first suggestions of Lépine[1] and Klemperer[2] in this direction. As the cases were critically studied, however, the proofs of the specific functioning of the kidneys in the pathogenesis of the glycosuria in most instances failed. It is undisputed that the development of renal lesions, especially chronic interstitial nephritis, in a diabetic may greatly reduce the excretion of sugar in the urine. That the reverse effect, that is, the elimination of sugar as the result of renal changes, may likewise take place cannot be denied on general principles. To establish the distinctly renal origin of a glycosuria it is fundamentally necessary to demonstrate that the excretion of sugar is not the result of a hyperglycemia. So long as the content of sugar in the blood is above the normal there is no occasion to conclude that an attending glycosuria has an etiology different from the usual type such as is commonly associated with perversions of pancreatic function. It is only in recent years that the technic of sugar estimation in the blood has been adequately developed and that this process has become a feature of the diagnostic study of cases of diabetes. The few data available for the earlier alleged instances of renal diabetes show a content of sugar in the blood if anything above rather than below what is now established as normal. Thus in Klemperer's oft-cited case it was 0.18 per cent. Estimations of sugar content of the blood are now so frequently made that an abundance of reliable statistics on this constant is available. For the blood-plasma of healthy man it varies between 0.08 and 0.11 per cent., the upper limit probably being at about 0.12 per cent. The figures for the total blood are not widely at variance from this.

Two criteria are essential in attempting to establish the renal origin of glycosuria. The excretion of sugar should be demonstrated to be more or less independent of the carbohydrate intake; for the glycosuria need not be entirely checked by regulation of the diet if a kidney factor rather than a more remote one is the pathogenic feature. More important, however, is the second test, namely, the demonstration that the glycosuria results in a hypoglycemia or at any rate that the sugar-content of the blood is not above the normal as is uniformly the case in the classic forms of diabetes.[3] Although such discriminating standards have been proposed only in recent years, and few cases have been tested adequately in the light of such differential diagnostic requirements, there are now a small number of records collected by reliable observers which seem to justify the real existence of a renal diabetes in man. The subject has been reviewed of late by Erich Frank[4] of Minkowski's clinic at Breslau. Sometimes the pathologic condition appears to be latent. There is no excretion of sugar until a liberal amount of carbohydrate is fed, whereupon glycosuria appears despite the fact that the blood sugar-content is well within or even below normal bounds. This seems to be peculiarly characteristic of pregnancy, so that Frank has come to the conclusion that almost every pregnant woman exhibits a latent renal diabetes which at once manifests itself when an abundance of sugar is fed.

The practical importance of recognizing a renal diabetes lies in the fact that this type does not call for a restricted dietary in the same way as does the usual human diabetes. It is too early to formulate an adequate theory as to the cause of the renal diabetes, if this shall at length be definitely established as a clinical entity. Tentatively we may assume, by analogy with the way in which a glycosuria of renal origin can be induced experimentally by drugs, that the perversion of the kidney function is the outcome of the action of a toxic substance arising, as it easily can, within the organism itself in some of the many upsets to which human metabolism is subject.

THE PROSECUTION OF QUACKS

The Chicago *Tribune* gives short shrift to medical fakers. It is one of those high-class newspapers, whose numbers are happily increasing, that refuse to pollute their pages with the advertisements of quacks. For the past two or three weeks the *Tribune* has had some members of its staff investigating the methods of Chicago advertising quacks of the "men's specialist" type, and in recent issues has given the results of these investigations. In showing up the villainous character of this disreputable business, this paper has done a distinct service to the public. When the first exposure was printed, the *Tribune* had a pertinent editorial on the subject, in which it asked the question:

---

[1] Lépine, R.: Nécessité d'admettre l'intervention d'un élément rénale dans le diabète sucré, Rev. de méd., 1896, p. 594.

[2] Klemperer, G.: Ueber regulatorische Glykosurie und renalen Diabetes, Ber. d. Ver. f. inn. Med., Berlin, May 18, 1896.

[3] The Blood-Sugar in Human Diabetes, Current Comment, The Journal A. M. A., Aug. 9, 1913, p. 418.

[4] Frank, Erich: Ueber experimentelle und klinische Glykosurien renalen Ursprungs, Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 387.

> "Gentlemen of the American Medical Association and of the Chicago Medical Association, what are you going to do about it?"

And closed with the statement:

> "This obscene traffic should be rooted out. It should be destroyed in Chicago. It should be destroyed wherever it goes on in the country, and it goes on everywhere. This is work for the American Medical Association to push energetically and to insist on the authorities completing."

The *Tribune* is mistaken in assuming that it is the work or duty of the American Medical Association to take any part in the prosecution of quacks, whether they operate locally or nationally. As scientific organizations, neither the American Medical Association nor the Chicago Medical Society is morally or legally concerned with this problem. The duty devolves explicitly and directly on the officers of the law who have been elected by the people to protect them against fraud. Physicians individually and collectively, through the American Medical Association, have for years been exposing the fraud practiced on the public by the quacks and "patent-medicine" fakers. The medical profession, with but one or two notable exceptions, has been well-nigh alone in this work. Vast vested interests are involved in the dirty business of both quackery and nostrum exploitation. The powers that should have protected the public have not acted, either because the public itself was indifferent on the question — being ignorant of the menace — or because there was little to be gained and much to be lost by fighting firm-rooted evil. Public prosecutors have possibly hesitated to act because they knew that, in many instances, the newspapers whose support they desired were not only out of sympathy with such prosecutions, but were actually participating in the unholy profits of the quack and the nostrum vender.

To leave such prosecution to the medical profession is to invite the inevitable cry, on the part of the quack, of "persecution" by the "doctors' trust." With a shrewd lawyer—and the quacks employ just such men, the length of their purses being well-nigh unlimited—it is not difficult to persuade the average lay jury that the plausible quack is being haled into court, not because he has defrauded the public, but because he has incurred the enmity of reputable physicians, whom the public look on as competitors! Time and again has this fact been brought out and the quack has been found "not guilty," the prosecution has failed and the swindler has gone forth, tongue in cheek, in the pose of a persecuted, much-maligned martyr.

When a crude swindler sells to the unsophisticated a "gold-brick," the officers of the law do not hesitate to prosecute. Yet here the pocketbook only is depleted; life and health are not involved. With the medical swindler, however, it is different, and action is seldom taken unless public officials are spurred into action by forces that should never need to be invoked. It is possible, of course, that the "gold-brick" swindler would be equally immune from prosecution if influential newspapers received large advertising contracts from people engaged in the "gold-brick" industry.

Let the officers of Chicago or of Cook County, whose duty is to protect the public, proceed against these "men's specialist" quacks, exposed by the Chicago *Tribune*. Let the State Board of Health revoke the licenses of such men as are employed in these "men's specialist" offices. There is no more reason for invoking the services of the American Medical Association or the Chicago Medical Society in this work than there would be for calling on the American Chemical Society to prosecute the street faker who offers to sell for a dime a wonderful mixture for turning brass or copper into silver. All that can be asked of the American Medical Association is that it should enlighten the public on the dangers of quackery. This the Association, through The Journal, has done, is doing and will continue to do, and the effect of this enlightenment is beginning to be felt in a national movement toward purging the newspapers of the country of medical frauds and fakes. More than this should not be expected of the medical profession. In fact, it is an economic and social error to attempt to shift the responsibility for prosecutions of this sort from the shoulders where it rightly belongs.

SYPHILIS AND ACUTE YELLOW ATROPHY OF THE LIVER

The occurrence of icterus to a greater or less degree during the secondary stage of syphilis is commonly recognized as not an unusual feature of the disease. According to statistics obtained from different clinics, from 1 to 2 per cent. of the total number of cases in which syphilis is present show, during the active stage of the infection, a greater or less degree of icterus, which has generally been ascribed to the direct action of the spirochetes on the liver. It is perhaps less generally known that sometimes this icteric condition passes into a typical clinical and anatomic picture of acute yellow atrophy of the liver. During the past few years, especially, cases of this sort have been reported, and since Fischer[1] in 1908 collected from the literature about fifty reliable examples of acute yellow atrophy in syphilis, this number has been considerably increased. There seem to be no particular features which distinguish these from the cases in which acute yellow atrophy exists from other or unknown causes. One is somewhat impressed, on looking over the clinical records, with the usual failure to demonstrate the presence of leucin and tyrosin in the urine; but it must be admitted that the prevailing impression as to their presence and the text-book statements concerning the abundance of these amino-acids in the urine during acute yellow atrophy, are, on the whole, exaggerated and misleading. On the other hand, in one case of syphilitic icterus and in two infants with inherited syphilis, Buschke[2] found leucin and tyrosin in the urine by using refined methods of chemical analysis.

---

[1] Fischer: Berl. klin. Wchnschr., 1908, lxv, 905.

There are two causal probabilities for the occurrence of this fatal complication in an otherwise not particularly severe syphilitic infection. One is that the severe hepatic injury is caused by a direct invasion of the liver by the spirochetes, or by the action in the liver of poisonous substances coming either from extrahepatic spirochetes or from tissues invaded by them. In this connection it can be said that attempts to find spirochetes in the liver, both by microscopic examination and through the inoculation of animals, have generally failed, and the clinical course of the cases has not usually indicated that any unusual amount of toxic material is being formed. Another possible causative factor may be found in the therapeutic attack on the disease. Acute yellow atrophy is essentially a rapid autolysis of liver tissue whereby a large proportion of it is dissolved, and the amino-acids liberated by the autolytic enzymes are carried away in the blood and excreted, occasionally in the urine. It has been demonstrated that mercury and arsenic salts markedly stimulate tissue autolysis,[3] which raises the question as to whether these essential and specific remedies may not, at least in some instances, be responsible for the acute yellow atrophy. This possibility is supported by many of the clinical records, which show that the jaundice appeared during or shortly after the time when the patient was receiving mercurial treatment.[4] There have also been two carefully studied cases in which acute yellow atrophy occurred during treatment of syphilis with salvarsan.[5] In one of these at least, there seems little doubt that the arsenic produced the condition, for the icterus appeared a few hours after the salvarsan was injected, and arsenic was found in the liver in not inconsiderable amounts. On the other hand, it is certain that mercury and arsenic are not always responsible, for not a few cases of acute yellow atrophy have developed in syphilitic persons who were not receiving any form of treatment and, furthermore, the hepatic conditions have been seen to improve under mercury.[6]

Since, therefore, syphilis of itself can cause an acute yellow atrophy, the question arises whether we ever have the right to incriminate the metallic salts when this complication arises in syphilis. An affirmative answer is indicated by the results in such cases as that reported by Tileston,[7] in which a non-syphilitic boy was treated for sympathetic ophthalmia by mercurial inunction for two months and developed acute yellow atrophy. Fortunately acute yellow atrophy is an extremely rare complication in syphilis, but, however rare it may be, if the necessary treatment is ever responsible it should be generally so understood in order that the possibility of even remote danger may be removed.

THE INFLUENCE OF ALTITUDE ON THE BLOOD

In various discussions which have been introduced in The Journal on the physiologic influence of high altitudes on the composition of the blood,[1] attention has been directed to the need of employing experimental methods of a high degree of accuracy in the study of this subject. Much of the criticism directed at the conclusions hitherto reached has been aimed at the alleged insufficiency of the methods adopted or the inadequacy of the technic of the investigators. This applies in particular to the much-debated question of the blood-count at high altitudes and the interpretation of the actual phenomena reported. The German physiologist, Bürker of Tübingen, has devoted much attention to this special aspect of the problem. The report of his investigations, which were referred to briefly some time ago, has now been published in detail[2] and furnishes some convincing data on mooted topics. They include comparative observations made at Tübingen (altitude 314 meters or 1,030 feet) and the Sanatorium Schatzalp (1,874 meters, about 6,150 feet, and about 300 meters above Davos).

One need only make a careful survey of the extensive literature on the physiology of altitude to reach the conclusion that none of the extreme statements made in relation to it can hold. In the light of what has been observed in the past it is unlikely, for example, that altitude is, on the one hand, entirely devoid of effects on the blood or, on the other, productive of the extreme changes which have been attributed to it. Bürker's findings, which appear to result from an exceptionally careful personal investigation with every precaution to avoid experimental error, show that altitude does exert an unquestionable influence on the blood in the direction of an increase in both the number of erythrocytes and the content of hemoglobin. The increase is an absolute one, not merely relative. The red cells increased from 4 to 11.5 per cent., the hemoglobin from 7 to 10 per cent. These figures, it will be noted, are smaller than those usually given for the effect of moderate altitudes, yet they represent substantial and undeniable gains quite in harmony with other previous observations.

The responses of the different persons in Bürker's Alpine expedition varied in degree; but the qualitative examinations of the blood established the fact that no hemoglobin derivative other than oxyhemoglobin was concerned in the increment at altitudes. In agreement with most observers the adjustment of the blood to the new atmospheric conditions in ascending to higher levels occurs promptly; there is a rapid increase in the factors involved at the start followed by a more gradual continuation of the effect; but on returning toward the sea-level the blood does not resume its "low altitude" composition so promptly. There may be a prolonged delay in the adjustment and return to normal figures. This phenomenon of the "after-effect" of high altitudes on the blood is also strikingly shown in the observations of Schneider of Colorado Springs on one of the most exceptional subjects ever examined.[3] It concerns a man who for seventeen years has been the resident manager of the Summit House on Pike's Peak at an altitude of over 14,000 feet. The hemoglobin in the blood of this man decreased very slowly after his descent from Pike's Peak at the end of a six months' stay. The percentage fell from 148 to 132 in thirty days and to 122 during the following six weeks spent at the lower altitudes. The number of red corpuscles decreased from 7.7 to 7.0 millions; the total volume of the blood showed an increase of 5.4 per cent. on the sixth day and a maximum, 7.5 per cent., on the thirtieth day. Similarly the oxygen capacity of the blood did not alter immediately after the descent from the Peak, but at the end of ten weeks a marked decrease was noted, as the other changes in the chemical makeup of the blood would lead one to expect. The changes here noted agree in a general way with those observed by Douglass, Haldane, Henderson and Schneider, the members of the Anglo-American Pike's Peak Expedition in 1911.[4] The sojourn of these physiologists was, however, less prolonged than that of the resident hotel manager.

---

[2] Buschke: Berl. klin. Wchnschr., 1910, lxvii, 238.

[3] Truffi: Biochem. Ztschr., 1909, xxiii, 270; Lacquer & Ettinger: Ztschr. f. physiol. Chem., 1912, lxxix, 1.

[4] Bendig: Berl. klin. Wchnschr., June 20, 1908, p. 1229.

[5] Severin and Heinrichsdorff: Ztschr. f. klin. Med., 1912, lxxvi, 138.

[6] Buschke: Berl. klin. Wchnschr., 1910, lxvii, 238.

[7] Tileston: Boston Med. and Surg. Jour., 1908, clviii, 510.

[1] Experimental Investigation of the Physiology of High Altitude, editorial, The Journal A. M. A., Aug. 10, 1912, p. 449. Physiologic Features of High Altitude, editorial, Sept. 21, 1912, p. 942. *The Blood Phenomena of Altitude*, editorial, July 26, 1913, p. 283.

[2] Bürker, K.; Jooss, E.; Moll, E., and Neumann, E.: *Die physiologischen Wirkungen des Höhenklimas: II. Die Wirkung auf das Blut, geprüft durch tägliche Erythrozytenzählungen und tägliche qualitative und quantitative Hämoglobinbestimmungen im Blute von vier Versuchspersonen während eines Monats*, Ztschr. f. Biol., 1913, lxi, 379.

Other incidental observations of Schneider on his unique subject are of more than passing interest. For instance, during a period of six years the arterial pressure has remained normal. The pulse-rate on Pike's Peak was about 82; the first days after the descent it remained at 60 and later accelerated to 70. The popular belief, also held by some physicians, that the chest is greatly enlarged by residence at high altitudes, has not been confirmed by Dr. Schneider. He maintains, with good evidence, that the vital capacity and chest measurements are not greater than those of men of similar physique at sea-level.

Bürker has also given attention anew to the old question of the possible effects of the electrical conditions in the atmosphere of high altitudes as well as the peculiarities of the sunshine. Nothing tangible could be made out for these factors. The controlling element in the physiologic reactions is first and last the rarefied air, in response to which the interesting adjustments are initiated.

BACTERIAL METABOLISM

Inasmuch as the cells are the ultimate biologic units in the majority of physiologic and pathologic phenomena with which the problems of medicine are concerned, it is only natural that minute attention should be devoted to these primary subdivisions of living matter. When once the mechanism and functioning of the cells shall be completely unveiled, hitherto impenetrable mysteries in the life-processes will promptly be dispelled. On general principles it would seem more rational to attempt to solve the perplexities of metabolic behavior in a relatively simple single cell or aggregation of such, rather than in a more complex organization of varied types of cells such as make up the familiar organs and tissues. One reason why the study of independent cellular performance has not been more vigorously prosecuted hitherto rests in the circumstance that there are comparatively few instances of detached simple cells available for direct experimentation or critical observation. Bacteria furnish an opportunity for the investigation of unicellular organisms with considerable ease. They differ, it is true, in a number of important directions from the cells of more complex individuals. Bacterial cells have no morphologic nucleus, although they contain nuclear material; and they divide directly by fission instead of indirectly by mitosis. Nevertheless these incidental distinctions need not stop us from considering some of the fundamental operations of both plant and animal cells in so far as they are manifested in the bacteria, the very rapid growth of which is an advantage in the direction of magnifying by reduplication the processes under consideration.

Impressed by such considerations, Kendall, Day and Walker[1] of the Northwestern University Medical School Department of Bacteriology have succeeded in demonstrating that bacterial metabolism and human cellular metabolism have certain fundamental features in common. Precisely as physiologists have long pointed out that carbohydrates spare proteins in the metabolism of the higher animals, it now appears that utilizable carbohydrates protect proteins to a very considerable degree in the case of bacteria.[2] In man this is shown by the more favorable nitrogen balance when carbohydrate is substituted liberally in the ration. In the unicellular bacteria ammonia formation can be taken as the index of proteolysis; for in them ammonia as a rule represents the final step in the degradation of the proteins, there being no available energy in it. The experiments of the Northwestern University investigators with a variety of strains indicate clearly that when bacteria are offered a choice between utilizable carbohydrates and utilizable proteins less ammonia is formed than when sugar-free mediums are employed. Of course all organisms inevitably require a minimal amount of nitrogenous matter for purely structural purposes. But leaving this feature aside, these studies confirm on the unicellular forms the well-attested physiologic fact that the energy of carbohydrates is more readily utilized than that of protein. To this extent, at least, all cells investigated seem to have certain biochemical characteristics in common.

---

[3] Schneider, E. C.: Physiologic Observations Following Descent from Pike's Peak to Colorado Springs, Am. Jour. Physiol., 1913, xxxii, 295.

[4] Douglass, C. G.; Haldane, J.; Henderson, Y., and Schneider, E. C.: Phil. Tr. Roy. Soc., London, B, 1913, ciii, 271; Anglo-American Expedition to Pike's Peak, editorial, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449

[1] Kendall, A. I., Day, A. A., and Walker, A. W.: Studies in Bacterial Metabolism, Jour. Am. Chem. Soc., 1913, xxxv, 1201.

[2] Kendall, A. I., and Farmer, C. J.: Studies in Bacterial Metabolism, Jour. Biol. Chem., 1912, xii, 13.

Current Comment

ADVERTISING THE FRIEDMANN "CURE"

Last week we told our readers that the American Medical Association had been sued by one J. J. Meyer of New York and Milwaukee for $100,000 for the articles it had published regarding the Friedmann "cure." This week two more suits have been entered against the Association apparently for the same articles. Each suit is for $100,000, one being brought under the name of Dr. T. L. Hein of New York City, the other under the name of Dr. J. S. Waterman of Algonquin, N. Y. The alleged libelous articles did not mention the names of either Waterman or Hein. Apparently these gentlemen feel that THE JOURNAL'S strictures on the exploitation of the Friedmann "cure" apply to them individually. It is fair to infer that they have put on the cap and decided that it fits. In each of the three suits ex-politician David S. Rose, "western representative" of the Friedmann concern, appears as attorney for the plaintiffs! When *Collier's* published its series of articles on "The Great American Fraud," some of the "patent-medicine" fakers started libel suits against the magazine. Every few months technical moves were made by the lawyers. With equal regularity items of "tainted news" appeared in those newspapers which catered to the "patent-medicine" interests, leaving with the careless reader the impression that the fakers had won their suits. Possibly it may be the intention of the Friedmann concern to play the same game in the present case. We may expect, from now on, that every week or so a new suit will be entered against the Association by others in the "Friedmann institute" business, each for $100,000, and each with David S. Rose as attorney. It remains to be seen whether any of these suits will be brought to trial. They may be but incidents in the advertising campaign of the disgraceful exploitation of the Friedmann "cure." We do not know of any cheaper way of getting into the newspaper than to file libel suits!

LATE RESULTS OF LUES

Now that the interest of the public concerning various sexual diseases, particularly syphilis, has been aroused, it is well to be able to place before it exact figures concerning the ultimate results of this disease rather than to hurl invective and paint imaginary horrors. Indeed, a cold analysis of such late results shows a picture as bad as that painted by writers on this subject, if not worse. A reference to the literature shows many reports, a few of which have analyzed a material consisting of large numbers of cases. Thus Pick and Bandler[1] studied 2,067 cases. Of these, sixty-four patients, or 3.1 per cent., died of tuberculosis; thirty-five patients, or 1.5 per cent., died of diseases of the nervous system; 0.6 per cent. died of liver and kidney diseases; 0.3 per cent. died from suicide and two of carcinoma. More recently Mattauschek and Pilcz[2] have analyzed the late results in 4,134 cases of lues occurring among officers in the Austrian army from 1880 to 1900. Up to Jan. 1, 1912, there was a total mortality of 546. The cause of death was ascertained in 508 of these cases. In 147 death was due to a secondary tuberculosis and in 83 to suicide; 17 patients died from aortic aneurysms and 101 of cardiovascular diseases, including myocardial degeneration and arteriosclerotic changes. Syphilis was the direct cause of death in 20 cases and produced permanent disability in 20 others. There were 91 deaths due to diseases of the nervous system, 17 to kidney disturbances and 12 to diseases of the liver. Of the remaining 3,588 patients, 198 have progressive paralysis, 113 are tabetic and 132 have developed cerebrospinal manifestations of syphilis, of whom 80 are insane. There were, therefore, 14.64 per cent. who have succumbed to the effects of their infection or are chronic invalids. It seems hardly worth while to attempt to draw conclusions from the facts and figures here presented. Their awful immensity is in itself potent to teach. These men, as officers in the Austrian army, are called by the authors "sexually enlightened"; but the enlightenment evidently did not portray the fearful dangers to which syphilis exposes its victims in such a manner as to deter them from exposing themselves to infection. Were it not for the fact that even among a large number of medical men, the definite causal relationship between progressive paralysis, tabes and other manifestations is not understood, it would seem almost incredible that these officers should not have known of the terrible power of syphilis to destroy. Of great interest, of course, will be similar observations made in another decade which will show the influence of newer methods of treatment.

INTRAMUSCULAR VERSUS SUBCUTANEOUS INJECTIONS

We are reminded by a recently published review[3] of the marked change of opinion which has come about of late in respect to the comparative efficiency of subcutaneous and intramuscular injections in the administration of therapeutic agents. Deep or intramuscular injections have been practiced by physicians for many years; not, however, in the belief that they afforded a more prompt mode of drug absorption, but rather on the supposition that the formation of abscesses was thereby more readily averted. It remained for Meltzer and Auer to demonstrate conclusively that the effects of active drugs appear earlier and with greater intensity after intramuscular injections than after subcutaneous injections.[4] Pointing in the same direction is the fact that doses ineffective by the latter mode of introduction may often exert their characteristic effect when injected intramuscularly. This is especially true when a certain concentration of active substance is called for in the circulation to induce the awaited result. Eggleston and Hatcher[5] found that for intramuscular injections the minimum dose of apomorphin to produce emetic action is half of that which provokes a similar effect on subcutaneous injection. Morgenroth and Levy[6] make the assertion in relation to the absorption of diphtheria antitoxin that the intramuscular injection of a small dose of antitoxin together with a fatal dose of toxin prevented even induration at the site of the injection, while a much larger dose of antitoxin administered subcutaneously (again with a fatal dose of toxin) was incapable of preventing the early death of the animals tested. To quote Meltzer's conclusion, it is now quite safely established that active substances are pharmacologically more effective, that is, manifest their effects earlier and with greater intensity, when administered by intramuscular than by subcutaneous injection.

---

[1] Pick and Bandler: Arch. f. Dermat., 1910, ci, 55.

[2] Mattauschek and Pilcz: Med. Klin. 1913, ix, 1544.

[3] Kleiner, I. S., and Meltzer, S. J.: The Relation of the Rate of Absorption of Adrenalin to its Glycosuric and Diuretic Effects, Jour. Exper. Med., 1913, xviii, 190.

[4] Meltzer, S. J., and Auer, J.: Jour. Exper. Med., 1905, vii, 59; 1910, xii, 34.

WORK OF THE COMMISSION ON ELECTRIC SHOCK

Late in 1911, the president of the National Electric Light Association asked the cooperation of the American Medical Association in establishing a commission to investigate the subject of electric shock and to formulate a standard chart for the use of workmen and others for reviving persons injured by electric currents. The matter was referred to and taken up by the Council on Health and Public Instruction. After considerable correspondence and discussion, a joint commission was appointed consisting of representatives named by the National Electric Light Association, the American Institute of Electrical Engineers and the American Medical Association. After devoting nearly a year to an investigation of the entire subject, the commission, which consisted of physicians, surgeons and electrical engineers,[7] made a report and prepared a chart and handbook of instructions as to the best methods of resuscitation from electric shock. The report appeared in the *Proceedings* of the National Electric Light Association. The handbook and chart were published by the *Electrical World* in a form suitable for distribution to workmen and for display in factories, power-houses and other places in which high-power electric currents are encountered. The need for these publications was at once evident. Railways and industrial corporations asked for large numbers of copies or for permission to reprint the rules, which was in all cases readily given. A number of government boards and state boards also reprinted the chart. The government of Canada has adopted the rules officially and has called the attention of all Canadian railways to them. Requests have been received for copies in Spanish, German, French, Italian, Japanese and Magyar, and authority for reprinting the rules in these languages has been given. The National Electric Light Association itself has distributed over a hundred thousand copies. While an exact estimate is impossible, it is probable that the rules have been reprinted either in full or in abstract about five million times, and the work is still going on. At the last annual meeting of the National Electric Light Association the following resolution was unanimously adopted:

> WHEREAS, The association has accomplished a most creditable piece of humanitarian work in the issuance of its rules on resuscitation from electric shock used throughout the world and approved formally by other industries, the national government and state boards: Therefore, be it
>
> *Resolved*, That the thanks of this association be extended to the Medical Commission for its splendid results, and also to the American Medical Association, without whose active cooperation these laudable results could never have been achieved.

The work of this commission is monumental and its effects will be wide-spread. It is an excellent illustration of the valuable results which can be secured through practical cooperation between the medical profession and enlightened business men for the saving of life and the prevention of accidents.

THE FATE OF COCAIN IN THE BODY

Not long ago we called attention to the need of revision of some of the inherited traditions and current views respecting the fate of various alkaloids in the body, instancing the example of morphin which has long been supposed not to be excreted through the kidneys to any noteworthy extent.[1] Some of the prevailing conclusions in regard to the behavior of cocain appear to be equally in need of amendment in the light of up-to-date information. When it was first reported that subcutaneous administration of this alkaloid was not followed by its reappearance in the urine, this finding taken in connection with some observations of a different type made it seem plausible to assume that cocain may be destroyed in large measure by contact with animal tissues. As a matter of fact, newer experiments conducted in the pharmacologic institute of the University of Berlin[2] bring evidence that cocain may actually be excreted in decidedly large proportions by the kidneys. At first, in any period of frequent administration of the alkaloid, a tendency toward cumulative manifestations may arise; but the proportionate daily output increases with the use of the drug. According to these newest studies of Rifâtwachdani even prolonged contact with living tissues does not appear to induce a destruction of cocain. For the closely related derivative ecgonin the kidneys have likewise been demonstrated to afford an effective path of excretion.

---

[5] Eggleston, C., and Hatcher, R. A.: Jour. Pharmacol. Exper. Therap., 1911-1912, iii, 551.

[6] Morgenroth, J., and Levy, R.: Ztschr. f. Hyg. u. Infectionskrankh., 1912, lxx, 69.

[7] The commission consists of Dr. Walter B. Cannon, Harvard Medical School, Boston, chairman; nominated by the American Medical Association, Dr. Yandell Henderson, Yale University, New Haven, Conn.; Dr. George W. Crile, Cleveland; Dr. S. J. Meltzer, Rockefeller Institute, New York; nominated by the National Electric Light Association, Dr. Edward A. Spitzka, Jefferson Medical College, Philadelphia; Mr. W. C. L. Elgin, Philadelphia Electric Company, Philadelphia; nominated by the American Institute of Electrical Engineers, Prof. Elihu Thompson, Harvard University, Dr. Arthur E. Kennelly, Lynn, Mass.; secretary, elected by the committee, Mr. W. D. Weaver, editor, Electrical World, New York.

[1] See The Excretion of Morphin, Editorial, THE JOURNAL A. M. A., Sept. 20, 1913, p. 972.

[2] Rifâtwachdani, S.: Das Schicksal des Cocains und Ekgonins im Organismus, Biochem. Ztschr., 1913, liv, 83.

Medical News

ARKANSAS

Emergency Hospital.—The board of managers of the Missouri Pacific and Iron Mountain Employees' Hospital Association has authorized the erection of an emergency hospital at Argenita, across the river from Little Rock. It will provide for emergency treatment of the sick and injured employees of the shops and railroad yards.

Personal.—Dr. Verne R. Stover, Little Rock, has resigned as superintendent of the city hospital, to become medical director of the St. James Hospital at Anking, China. Dr. J. B. Dooley has been named to succeed Dr. Stover. Dr. W. M. McRae has succeeded Dr. Dooley as district physician.——Dr. Jesse S. Rinehart has been appointed city health officer at Camden.——Dr. W. G. Hodges of Social Hill has been appointed physician for the Malvern and Camden Railway.

State Hygienic Laboratory.—The laboratory of the newly created State Board of Health of Arkansas, under the direction of Dr. Morgan Smith, secretary, is now ready, at Little Rock, for making laboratory tests required by physicians throughout the state. Instructions have been sent out as to the manner in which specimens should be sent in for examination and stating what work the state board is prepared to do in its laboratory. Among the activities of the board is the establishment of a state health car to tour the state for the instruction of the people in preventive medicine. The car is to be supported partially by voluntary subscriptions.

CALIFORNIA

Personal.—Dr. Max Morse, Berkeley, has been appointed instructor in physiology of the medical department of the University of California.

New Hospital.—Plans have been completed for the erection of a five-story and basement reinforced concrete hospital building in Los Angeles for the Methodist Hospital Association. The cost of the building is estimated at $100,000.——The French Hospital Association of Los Angeles is also to erect a three-story hospital at the corner of College and Castelar Streets.

New State Medical Examining Board.—October 10, Governor Johnson appointed ten members of the state medical examining board under the law passed by the last legislature. Of these men, five are of the regular school, two osteopaths, two homeopaths and one eclectic. The men appointed are as follows: Dr. Harry E. Anderson, San Francisco; Dr. William R. Molony, Los Angeles; Dr. S. H. Buteau, Oakland; Dr. Frederick, F. Gundrum, Sacramento; Dr. H. Clifford Loos, San Diego; Dr. D. L. Tasker, Los Angeles; Dr. W. W. Vanderburgh, San Francisco; Dr. Charles B. Pinkham, San Francisco; Dr. Robert A. Campbell, Los Angeles; Dr. H. V. Brown, Los Angeles.

ILLINOIS

Child Welfare Exhibit.—Peoria had its annual Child Welfare convention and exhibit, beginning October 27. Four thousand dollars were spent on the exhibit which surpassed that of former exhibits. The local management had the support and encouragement of Dr. Julia Lathrop, of the National Child Welfare Bureau and of the Russell Sage Foundation.

Names New Men on State Board.—Governor Dunne on October 28 appointed the following members of the State Board of Health: John A. Robison, Chicago, to succeed Dr. Henry Richings, Rockford, term expired; Dr. Tullis B. Lewis, Hammond, vice Dr. Perry H. Wessel, Moline; Dr. Robert D. Luster, vice Dr. Ralph E. Niedringhaus, Granite City, and Dr. Adam Szwajkart, Chicago, to succeed Dr. Charles J. Boswell, Mounds.

To Prevent Lake Pollution.—Dr. R. B. Stolp, president of the village of Kenilworth, has been instructed by the village board to commence proceedings to restrain the cities and villages of the North Shore, from polluting the waters of Lake Michigan from which Kenilworth obtains its water supply. Waukegan and Kenosha are the principal towns complained against. The action is to be brought in the United States court. The problem of the pollution of the water supply of the great population in Chicago and its neighborhood is one that must soon be met.

Personal.—Dr. Frank Davenport, Rock Island, who has been in the service of the American Smelting and Refining Co., in Mexico, has returned to the United States after having many interesting experiences in connection with the revolution in that country.——Dr. H. E. Johnson, Bloomington, will spend the winter at his home in Crescent City, Florida.——Dr. Wilcox, Amboy, after a protracted illness in the hospital at Dixon, has returned to his practice.——Dr. H. G. Schmidt, Elgin, has returned from the seat of war at Torreon, Mexico.——Dr. George F. Tyson, Evanston, has returned from a visit to Scotland.——Dr. James H. Shepperd, Peoria, was operated on for appendicitis at the Proctor Hospital, October 18.——Dr. J. S. Adsit, Danville, has been elected president of the State Medical Society.——Dr. L. B. Jolley, North Chicago, and Dr. V. J. Cokenour, Joliet, met with similar accidents in the breaking of their arms while cranking their automobiles.——Dr. T. D. Doan, Scottville, has resumed practice after spending nine months in the Modern Woodmen Sanatorium in Colorado.

Chicago

Personal.—Dr. Liston H. Montgomery has been appointed surgeon of the Eastern Division of the Chicago Great Western Railroad.——Dr. Clarence H. Wall, police ambulance surgeon, operated on for hernia October 21, is recovering rapidly.

War on Fake Medical Museums.—Chicago has begun war on the fake medical museums in the city, chiefly on South State Street. The health department has obtained warrants against the promoters of two of these museums and they have been closed.

Sanatorium for Advanced Tuberculosis.—The cornerstone has been laid of a sanatorium for advanced cases of tuberculosis, located at Fiftieth and Belmont Avenue. The structure is to cost $50,000 and is being promoted by the Jewish Consumptives' Relief Society. One hundred patients will be cared for. Dr. Theo. B. Sachs is to be the physician in charge.

IOWA

Tri-County Medical Society.—A tri-county medical society, including Monroe, Marion and Mahaska counties, was organized at Albia early in October with the following officers: president, Dr. Ernest C. McClure, Bussey, and secretary, Dr. Taylor R. Jackson, Albia.

Second District Medical Society.—At the meeting of the Second District Medical Society at Davenport, October 14, Dr. F. H. Little, Muscatine, was elected president; Dr. C. P. Howard, Iowa City, and Dr. L. B. Carson, Maquoketa, vice-presidents, and Dr. J. V. Littig, Davenport, secretary-treasurer. The 1914 meeting is to be held at Davenport.

Medical Society Elections.—The Council Bluffs Medical Society has elected the following officers: president, Dr. W. P. Hombach; vice-president, Dr. L. L. Henninger; secretary, Dr. John S. McAtee; treasurer, Dr. F. W. Dean; board of censors, Drs. A. V. Hennessy, V. S. Treynor and J. H. Cole.——At the meeting of the Benton County Medical Association at Cedar Rapids, the following officers were elected: president, Dr. G. A. Wagner, Van Horn; vice-president, Dr. J. E. Luckey, Vinton; secretary-treasurer, Dr. Theodore L. Chadbourne, Vinton.

Personal.—Dr. William Jepson, head of the University College of Medicine, Iowa City, has resigned. Dr. Jepson resides in Sioux City. Dr. W. R. Whiteis of Iowa City has been appointed to succeed him.——Dr. E. J. Walsh, Davenport, has returned from a trip to Europe.——Dr. C. C. Smead of Newton has had a stroke of paralysis.——Dr. Bert Joynt, Emmetsburg, will go to Vienna for study.——Dr. Henry C. Stanclift, Mt. Vernon, has returned from a six months' visit to England.——Dr. E. C. Ayers of Lorimer had his arm broken in an automobile accident while on a visit at Geneseo, Ill.——Dr. W. O. McDowell of Grundy Center was recently operated on at Davenport for appendicitis.

Campaign for Public Health.—Prof. L. W. Dean, Iowa City, of the University of Iowa Medical College, and president of the Iowa State Medical Society, has appointed a state council on public health education, consisting of the following members: Dr. M. M. Dolding, Cherokee; Dr. Henry Albert, Iowa City, state bacteriologist; Dr. Lenna L. Means, Des Moines; Dr. Jeannette Throckmorton, Chariton, and Dr. Paul E. Gardner, New Hampton. Subcommittees are to be appointed in the different counties throughout the state, from various civic, commercial and other bodies, who are to be asked to cooperate in a general campaign for health improvement. Subjects have been assigned which will be discussed in various places during the year. Among them are the fly and the mosquito, public school questions, the normal child, and tuberculosis. The Council on Public Health Education of the American Medical Association will also provide speakers for the campaign in Iowa.

MARYLAND

Educational Campaign.—An educational campaign for social hygiene is to be undertaken by the Maryland Society for Social Hygiene, and at a meeting held recently an educational committee was appointed to report on plans for placing the matter in an intelligible and dignified way before the schoolchildren and the general public.

Personal.—Sir William Osler has accepted an invitation to deliver the principal address at the opening of the James Buchanan Brady Urological Clinic.——Dr. Henry Barton Jacobs attended the formal opening of the International Tuberculosis Conference in Berlin, as a delegate from America.——Dr. Brice Goldsborough, who was recently a patient at Dr. Howard A. Kelly's Sanitarium, has recovered and resumed his practice.

New School for Blind.—The Maryland School for the Blind at Overlea was dedicated during the past week with elaborate exercises and in the presence of noted educators of the blind from other states. The Maryland School for the Blind has attracted considerable attention because of being the first to adopt the modern cottage system of housing the pupils instead of the old dormitory system. There are four cottages, each with accommodations for thirty, three or four teachers and a house mother.

Increased Appropriation Refused.—The Baltimore hospitals, which asked for an increased per capita of 50 cents per patient, have been refused by the Board of Estimates. For many months there has been a movement on foot to have this raised to $1, the contention of the hospitals being that they were suffering a loss under the present arrangement. At the present time there are eleven hospitals under contract with the city to care for patients who are turned over to them either by representatives of the police department or through some branch of the city charities.

MINNESOTA

Lectures on Hygiene.—Members of the State Board of Health will give a series of twenty lectures on hygiene to the students of the medical department of the university, under the direction of Dr. R. H. Mullin, Minneapolis, of the laboratory division.

Reporting Infectious Diseases.—The State Board of Health has recently made a regulation requiring the placarding of houses in which persons with tuberculosis live. This is to be enforced only when proper precautions are not taken by the patients and the inmates of such houses. Cards are also to be placed on houses in which there are cases of whooping-cough. Teachers, lodging-house managers, managers of workmen's camps, etc., are required to report cases of sore eyes, with the idea of preventing the spread of trachoma.——Dr. J. J. Kinyoun of the U. S. Public Health Service is reported as having declared that Minnesota should have a leper hospital. Fourteen cases of leprosy have been found in the state.

Personal.—Dr. C. O. Merica, superintendent of the State Training School for Boys, in Red Wing, has resigned, to take effect Jan. 1, 1914. Dr. J. F. Fulton, assistant superintendent, has become acting head of the school.——Dr. R. F. Goodwin of Minneapolis was injured in an automobile accident.——Dr. W. M. Smith of Red Wing was elected vice-president of the Minnesota State Sanitary Conference at Minneapolis.——Dr. A. E. Spalding of Luverne was elected president of the State Medical Society. He is also a member of the board of state censors. The president of the state society is selected from Minneapolis one year, from St. Paul the next year, and each third year the chairman is selected from the state outside of those two cities.

NEBRASKA

Alumni Meeting.—The fourth annual clinical alumni week of the College of Medicine of the University of Nebraska was held in Omaha October 13 to 18. An interesting scientific and social program was provided.

Personal.—Dr. J. P. Lord, Omaha, has returned after spending the summer in Europe.——Dr. G. Davis, York, has been appointed by the board of control as pathologist at the Hastings Asylum.——Dr. J. H. Vance, Omaha, was recently operated on at Rochester for gall-stones.

New University Medical School. — The University of Nebraska College of Medicine has been removed from Lincoln to Omaha. A new building has been provided for the school, which cost $115,000, and was dedicated in September. It is to be the aim of the college to be to the people of the state what the agricultural college has been to the agriculturists of the state. On the program of the college work is a series of popular lectures on medical subjects and the maintenance of a free dispensary. Seven new laboratory instructors and a clinical staff of four physicians of Omaha have been added to the faculty of the Omaha College of Medicine, which up to last year gave the last two years of the medical work in the university course. The faculty now number fifty-five in all.

NEW YORK

Court Interprets Sanitary Code.—The Sanitary Code of New York City which forbids any milk dealer to receive or have in his possession unclean milk bottles has been upheld by the court of appeals, but the court allows a reasonable time in which to clean them. The court states that this section of the sanitary code is constitutional and that its effect is to prohibit a person who receives unclean milk bottles from keeping them unclean for any length of time.——A verdict of $16,800 has been directed by the supreme court in an action brought by the state of New York against two New York milk dealers, who were accused of skimming the cream from 168 bottles of milk. In February, 1911, a similar case was tried and resulted in a verdict of $50 a can on 336 cans.

New York City

Lectures in Genito-Urinary Diseases.—A series of clinical lectures and demonstrations on genito-urinary and venereal diseases, will be given by Dr. Bierhoff every Monday evening at 8:30 o'clock at the West Side German Dispensary, beginning Nov. 3, 1913. The course is free to physicians and advanced students in medicine.

The Bulkley Lectures.—In accordance with his usual custom Dr. L. Duncan Bulkley will give a series of clinical lectures on diseases of the skin at the New York Skin and Cancer Hospital on Wednesday afternoons, beginning Nov. 15, 1913, at 4:15 o'clock. These lectures are free to the medical profession on presentation of their professional cards.

Whooping-Cough Camp.—The *Helen C. Juilliard*, the Floating Hospital of St. John's Guild, is to be used during the winter months as a whooping-cough camp. This will not interfere with the usual summer work of the Floating Hospital. One of the features of the work will be the instruction of the mothers in the care of their children at home.

Gifts to Columbia.—At a meeting of the trustees of Columbia University on October 6, it was announced that the family of the late W. Bayard Cutting had given $200,000 as a fund for the maintenance of traveling fellowships which will be open to graduates of the university, including the College of Physicians and Surgeons. It was announced at the same time that Mr. Clarence H. Mackay had given $2,500 for surgical research and that an anonymous donor had given $1,000 for salaries in the department of physiology.

NORTH CAROLINA

Whole-Time County Health Officers.—Of the 100 counties of North Carolina, ten have appointed health officers who devote their entire time to the work, receiving salaries of from $1,800 to $2,500. At a conference of these officers held recently in Raleigh, with a view to better instruction in their duties and a standardization of their work, the following were present: Drs. A. N. Cox, Columbus County; Archibald Cheatham, Durham, Durham County; W. M. Jones, Guilford County; H. H. Utley, Benson, Johnson County; J. Strickland, Nashville, Forsythe County; Samuel Ellington, Wentworth, Rockingham County; B. W. Page, Lumbarton, Robeson County; G. M. Cooper, Clinton, Sampson County; D. E. Sevier, Asheville, Buncombe County, and C. T. Nesbitt, Wilmington, New Hanover County.

OHIO

Cincinnati

Academy of Medicine.—Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, read a very excellent paper before the academy, entitled "The Hospital Superintendent." It was discussed by Drs. Oliver, Geier and Holmes.——Dr. Charles A. L. Reed, president of the Academy of Medicine, has been officially advised that the invitation extended by the academy to the Mississippi Valley Medical Association to meet in this city in October, 1914, was unanimously accepted at the session just concluded in New Orleans.

Personal.—Dr. Gustav Zinke, for twenty-five years past the president of the medical staff of the German Deaconess Hospital, has resigned his position, Dr. Max Koehler having been elected as his successor. Dr. Zinke will retain the distinction of honorary president.——Dr. J. H. Landis, city health officer, has been elected to membership in the New York Milk Commission, a national organization whose purpose is to create a demand for pure milk.——Dr. E. W. Mitchell has been chosen to occupy the chair of internal medicine in the medical department of the university, a vacancy caused by the death of the late Dr. Frederick Forchheimer.——Dr. O. P. Geier, City Superintendent of Charities and Correction, has been elected vice-president of the Ohio Child Welfare League.

PENNSYLVANIA

Insane Fund.—The city treasurer of Philadelphia paid to the state treasurer $18,961.19 for the care by the state, of the insane of the County of Philadelphia, for the year ending May 31.

Personal.—Dr. C. Johnstonebach of Bethlehem, and Dr. William A. Stewart of Pittsburgh, were appointed by Governor Tener, October 20, as members of the Bureau of Medical Education and Licensure.

University Appointments.—The following new appointments to the faculty of the School of Medicine, University of Pittsburgh, have been made: Dr. W. E. Gardner, assistant demonstrator in anatomy; Dr. J. W. McMeans, assistant in clinical pathology and demonstrator in pathology; Dr. J. C. Irwin, instructor in obstetrics; Dr. R. J. Cary, demonstrator in medicine; Dr. Arthur Miltenberger, assistant demonstrator in obstetrics; Dr. J. H. Seipel, assistant demonstrator in obstetrics, and Mr. Orville J. Walker, assistant in physiology and pharmacology. The following increases in rank have likewise been provided for: Dr. Chris Gardner, from assistant demonstrator to demonstrator in anatomy; Dr. W. L. Croll, from instructor to assistant professor in obstetrics.

Vision Conservation Society Formed.—Acting under auspices of the commission appointed by the Medical Society of the State of Pennsylvania, laymen and doctors have formed the Pennsylvania Society for the Conservation of Vision. Aroused by learning that this country has 100,000 blind people, an active campaign is under way against ophthalmia neonatorum, needless eye injuries in the trades, trachoma, wood alcohol, wrong lighting of buildings and like causes. In addition to a large number of distinguished laymen, acting as advisory members, the Commission on Conservation of Vision includes Dr. Wm. Campbell Posey, Wills Eye Hospital, Philadelphia, chairman; Dr. Wm. W. Blair, University of Pittsburgh, Pittsburgh, Pa.; Dr. Clarence P. Franklin, Philadelphia; Dr. C. M. Harris, Johnstown, Pa.; Dr. Edw. B. Heckel, Pittsburgh, Pa.; Dr. T. B. Holloway, University Hospital, Philadelphia, secretary; Dr. Wendell Reber, Temple University, Philadelphia; Dr. Edward Stieren, Pittsburgh, Pa.; Dr. Lewis H. Taylor, president of State Society, Wilkes-Barre, Pa.; Dr. Wm. Zentmayer, Wills Eye Hospital, Philadelphia; Dr. Samuel G. Dixon, Commissioner of Health of the State of Pennsylvania, Harrisburg, Pa., honorary chairman. Membership, costing $1 a year, is asked from all persons, and the secretary may be written to direct.

Philadelphia

Hospital Cornerstone Laid.—The cornerstone laying of the new Jewish Maternity Hospital at Fifth and Spruce Streets, was celebrated on October 20. The hospital is being erected by the Jewish Maternity Association, which was founded in 1884, and has cared for 7,000 mothers in this city as well as 5,000 mothers at seaside resorts. The new building will cost $60,000, and it will be equipped in the most modern and complete manner.

Jefferson Hospital Section of Diseases of the Chest.—The trustees of Jefferson Medical College announce that the new Department for Diseases of the Chest is ready for occupancy. The new department was made possible by the purchase of the buildings formerly, occupied by the Phipps Institute and located at 236-238 Pine Street. These buildings have, at a cost of $20,000, been completely renovated and modernized and every facility afforded for the efficient care of patients suffering with diseases of the chest.

Personal.—Dr. J. Torrance Rugh, associate in orthopedic surgery, in Jefferson Hospital, has been appointed orthopedic surgeon to the Philadelphia General Hospital, to succeed Dr. H. Augusta Wilson, resigned.——Dr. Julius Blechschmidt has been appointed chief clinical assistant in the Pediatric Department, Jefferson Medical College Hospital.——Dr. Frances Heath, of the Woman's Medical College, of this city, sailed for Pekin, China, October 15. She will become an instructor in anatomy and surgery in the Union Medical College of Pekin.——Dr. W. D. Robinson has been elected a member of the Board of Directors of the Child Federal of this city.

VIRGINIA

State Society Meeting.—The annual meeting of the Medical Society of Virginia was held in Lynchburg, October 21-24, and the following officers were elected: president, Dr. Stephen Harnsberger, Catlett; vice-presidents, Drs. R. C. Bryan, Richmond; John Staige Davis, University, and B. R. Gary, Newport News; delegates to the American Medical Association, Drs. H. E. Anderson, Farmville, and Kirkland Ruffin, Norfolk; alternates, Drs. R. M. Taliaferro, Lynchburg, and Lomax Gwathmey, Norfolk, and councilors-at-large, Drs. H. Stuart McLean, Richmond, and George J. Tompkins, Lynchburg.

GENERAL

The Eustachius Celebration.—The town of San Severino in Italy was the scene in September of a gathering of scientists to honor the quadricentennial of Bartolommeo Eustachius, the great anatomist of the sixteenth century. G. Bilancioni reported several new finds in the numerous works of Eustachius, demonstrating his priority in certain other discoveries not generally credited to him.

Mississippi Valley Medical Association.—The thirty-ninth annual meeting of the Mississippi Valley Medical Association was held in New Orleans, October 23 to 25, under the presidency of Dr. Albert E. Sterne, Indianapolis. Cincinnati was selected as the place of meeting for 1914, and the following officers were elected: president, Dr. D'Orsay Hecht, Chicago; vice-presidents, Drs. W. W. Butterworth, New Orleans, and Willard J. Stone, Toledo, Ohio; secretary, Dr. Henry Enos Tuley, Louisville, Ky. (reelected), and treasurer, Dr. S. C. Stanton, Chicago (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $50,000; the House of Rest for Consumptives and the New York Association for Improving the Condition of the Poor, each $10,000, by the will of the late Herman Casper von Post.

Philadelphia Home for Incurables, for the endowment of a room in memory of Robert and Elizabeth Cresswell, $5,000; the Sanitarium for Sick Children and the Children's Country Week Association, Philadelphia, $500, by the will of the late Miss Elizabeth P. Cresswell.

Wills Eye Hospital, Philadelphia, $50, by the will of the late Thomas Seery.

Federation of Jewish Charities, New York City, $2,000; Jewish Seaside Home, and Jewish Day Nursery, both in New York City, $250 each, and Mt. Sinai Hospital, New York City, $200, by the will of the late Henry Jonas.

Johns Hopkins Medical School, Baltimore, $1,500,000; Barnard College, New York City, $200,000; Wellesley College, Wellesley, Mass., $200,000; Ripon College, Ripon, Wis., $50,000. These donations were announced October 24 by the General Education Board, founded by John D. Rockefeller, and are gifts by Mr. Rockefeller.

Formation of National Radium Institute.—Dr. Charles L. Parsons, chief of the Division of Mineral Technology, Bureau of Mines, has been authorized by the director of the Bureau of Mines to announce that a cooperative agreement has been entered into with the newly organized National Radium Institute whereby the bureau obtains the opportunity of a scientific and technological study of the mining and concentrating of carnotite ores and of the most efficient methods of obtaining radium vanadium and uranium therefrom, with a view to increased efficiency of production and the prevention of waste. The National Radium Institute was recently incorporated with the following officers: Howard A. Kelly of Baltimore, president; Curtis F. Burnam of Baltimore, vice-president; Archibald Douglas of New York, secretary and treasurer; James Douglas of New York, and E. J. Maloney of Wilmington, additional directors. The institute has obtained the right to mine twenty-seven claims in the Paradox Valley region, among which are some of the best mines in this richest radium-bearing region of the world. Under the agreement with the Bureau of Mines the technical operations of the mines and mill are to be guided by the scientific staff of the bureau. All processes, details of apparatus and plant and general information gained will be published for the benefit of the people. The institute is supplied with sufficient funds to carry out its plans. It has been formed for the special purpose of procuring enough radium to conduct extensive experiments in radium therapy with special reference to the curing of cancer.

Gift to Johns Hopkins.—The General Education Board, founded by John D. Rockefeller, has announced a gift of $1,500,000 to the medical school of Johns Hopkins University. It is to be known as the William H. Welch endowment for education and clinical research, as a recognition of Dr. Welch's distinguished service to the cause of medical education in America. This is the greatest gift ever made by the board to a single institution of learning. The proposed plan of spending the money opens the way for a new era in medical science. Briefly it is this: To so reorganize the medical school as to pay out of the income from the gift such salaries to the men who occupy the chairs of medicine, surgery and pediatrics and to their assistants as will enable them wholly to drop their private practice and devote their entire time, ability and lives to the advancement of their particular branches. The departments which it affects are at present presided over by the following: professor of medicine, Dr. Lewellys F. Barker; professor of surgery, Dr. W. S. Halsted; professor of pediatrics, Dr. John Howland. The first problem confronting the trustees of the Hopkins University, which will administer the fund, will be to persuade the men now at the head of these departments to withdraw from the large practice which each has and accept the salary which the fund will afford. What this salary will be has not been determined, but judging from the income which will be derived from the fund it is speculated that $10,000 may be the sum offered to the heads of the three departments. About twenty physicians are affected. The plan takes in not only the heads of the departments, but also contemplates the appointment of associate professors and assistants. The Johns Hopkins University and the Johns Hopkins Hospital have been the recipients of many large gifts, besides the original gift of Johns Hopkins, for the establishment of the hospital, exclusive of the ground on which the hospital stands, amounting to $2,941,603.35.

CANADA

Flower Day Funds.—Violet and Rose day in Montreal, Saturday, October 18, held in aid of the Royal Edward Institute for the Tuberculous and the School for Cripple Children, netted $25,000 for those institutions. Two thousand women, girls and boys were engaged in the sale of the flowers.

Western Medical College.—The Western Medical College at London, Ontario, is now the medical faculty of the Western University of that city. The following officers have recently been elected: dean, Dr. H. A. MacCallum; registrar, Dr. W. E. Waugh; executive committee, Drs. H. A. MacCallum, Waugh, Hadley Williams, H. Meek, F. P. Drake and H. W. Hill.

Personal.—Dr. J. R. Oulton, Montreal, has been appointed superintendent of the Alexandra Hospital of that city.——Dr. Murray Leys, late superintendent of the Alexandra Hospital, Montreal, has left for six months' study in Europe.——Dr. Fred Marlow, Toronto, has been appointed associate professor of gynecology in the medical faculty of the University of Toronto.

Examinations by Dominion Medical Council.—At the first examinations of the Dominion Medical Council, held in Montreal, October 7, seventy-one candidates presented themselves. Of this number forty-four passed, eight were referred to the Council, having failed on two subjects, and nineteen were rejected. Most of the successful candidates were from the provinces of Ontario and Quebec; one from New Brunswick; one each from Alberta and British Columbia; and two from the United States.

Annual Meeting Canadian Hospital Association.—The annual meeting of the Canadian Hospital Association was held in the clinic hall of the new Toronto General Hospital, October 21, 22 and 23, under the presidency of Dr. H. A. Boyce, superintendent of the Kingston General Hospital. According to Dr. W. A. Young the sale of noxious drugs has increased very rapidly the past few years in Toronto, to such an extent as to demand an amendment to the Canadian criminal code to deal with offenders. The president's address dealt with every phase of hospital and humanitarian work, and was particularly scathing of the parsimonious conduct of boards of trustees who refused to send their superintendent to the annual meetings of the association, whence they would return to their duties with renewed vigor and new ideas as to hospital work and management. The association should do all in its power to prevent the distribution of literature which makes the young think they have disease, while patent medicines containing harmful ingredients should be restricted. Dr. Boyce also advocated the standardization of hospitals and the appointment of a government architect to criticize the plans of all hospitals before they were built. Dr. Thomas Howell, president of the American Hospital Association, submitted a paper which was read by Dr. E. H. Young, assistant superintendent of the Kingston Hospital. It dealt with points for inexperienced superintendents in purchasing, receiving and distributing supplies. He advised to buy goods of good quality on the cooperative plan. By this means the hospitals could gain much. That all hospitals should share in the public taxes on the same plane, with parks and libraries, seemed to be the general approved opinion of the conference. Dr. D. M. Robertson, superintendent of the Protestant General Hospital, Ottawa, told the gathering that eight years ago a plebiscite was taken in Ottawa on the question of raising a tax for the benefit of the hospitals of that city. It carried by three to one. The tax at first was a quarter mill, then a half and now it is three quarters. In addition the hospitals in Ottawa to-day receive more private subscriptions than they ever did. Dr. J. N. E. Brown, formerly superintendent of the Toronto General Hospital, and now superintendent of the Detroit General Hospital, gave a lantern lecture on the great hospitals of the world. He seemed to be in favor of the one-story pavilions with fifty to sixty acres of land alongside of fields and woods rather than hospitals overshadowed by skyscrapers. He hoped for the day when hospitals would not be pinched in money matters. Rev. A. S. Kavanagh, superintendent of the Methodist Episcopal Hospital, Brooklyn, N. Y., dealt with indispensable combination in hospital work. The nurse leaders, he said, were committed to the policy now that the training school must stand apart from the hospital. He thought they should hail with satisfaction the divorcing of the training school from the hospital, provided it was organized on the same basis as the medical school for the young men. The trade-union spirit of the nurses was open to criticism. Dr. John A. Hornsby, Chicago, did not think there was entire disinterested cooperation in the medical staffs of the hospitals. When the practice of having medical staff officers placed on a salary and giving their whole time to their work came into vogue, blessed would be the day for the sick man or child. The failure of several Ontario hospitals refusing to retain properly qualified dispensers came in for criticism. The association elected the following officers: president, Dr. E. H. Young, Kingston; treasurer, Miss Kate Mathieson, Toronto; secretary, Dr. W. J. Dobbie, superintendent of the Weston Sanatorium for Consumptives, Toronto (reelected).

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 18, 1913.

Exclusion of Immigrants by Australia on Medical Grounds

The Australian commonwealth has issued amended and extended regulations defining those liable to exclusion as "prohibited immigrants" on account of disease. The following are so defined: (1) any person not possessed of the prescribed certificate of health; (2) any idiot, imbecile, feeble-minded person or epileptic; (3) any person suffering from pulmonary tuberculosis, trachoma or any loathsome or dangerous communicable disease, either general or local; (4) any person suffering from any disease or mental or physical defect which, in the opinion of an officer, is liable to render the person concerned a charge on the public or on any public or charitable institution; (5) any person suffering from any disease, disability or disqualification in the following list: serious deformities or physical defects; insanity, an attack of insanity within five years of proposed emigration, or a history of two or more attacks of insanity or mental derangement at any time, or dementia; chronic alcoholism; senile decay; tuberculosis of the digestive tract, or the genito-urinary system, or of bones or joints; heart-disease with signs of heart failure; chronic bronchitis with complications; paralysis or other serious nervous affections; cancer or other malignant growths; chronic rheumatism, rheumatoid arthritis or rheumatic gout, or severe hernia. The prescribed medical certificate referred to above must be obtained from approved medical referees appointed by the government.

Exclusion of Immigrants by South Africa

In South Africa a series of regulations have also been issued prohibiting from admission immigrants suffering from certain diseases. Leprosy, trachoma, favus, frambesia, syphilis and scabies are declared loathsome diseases, bringing patients with these diseases under the category of prohibited immigrants. Persons suffering from tuberculosis may be allowed to land under a permit from the immigration officer, but these permits are to be issued only at the ports of Capetown and Durban and on the following conditions: the place of residence and the mode of transport thereto to be subject to the approval of the immigration officer; the immigrant to report himself to the local health authority at his place of residence and to present himself for examination by the district surgeon or other approved medical practitioner whenever required; sleeping accommodation never to be shared with any other person, and regulations by the local health authority for preventing infection to others to be observed.

The Measurement of Mental Capacity

In a lecture delivered at University College on "Mental Energy," Spearman said that the whole of the earlier psychology, and a large part of it now, was devoted to quality of mind and not quantity. They were now turning their attention to quantity, and it was opening up a new sphere. It was possible now for every one to measure the amount of his or her mental energy. At present there was a great deal of discontent and class hatred. The lower classes complained that the upper classes obtained all the best jobs, and contended that they were quite as well equipped and that it was only their circumstances that kept them out. The upper classes, on the other hand, said that they were put there because they had more brains and were better able to do the work. But the day would come when there would be no question of persons' abilities. They would be measured to several decimal places long before they left school, and if the best positions were given to the persons with the largest amount of mental energy there could be no complaints as to other brains being more suitable.

Sir Almroth Wright on the Suffragette Movement

Sir Almroth Wright, of "opsonic" fame, has ventured into the political arena and published a book entitled "The Unexpurgated Case against Woman's Suffrage." He arraigns the whole feminist movement and bases his case on the essential inferiority of woman both intellectually and physically in comparison with man. Her claim to a vote he rejects on the ground that woman is insolvent, that is, has to be supported by man. He argues that the greater number of women who have independent incomes do not earn them but have derived them from men. He holds that nothing in the end would more certainly lead to war and revolt than the decline of the military spirit and loss of prestige which would inevitably follow if men admitted women into political copartnership. The woman voter would be pernicious to the state not only because she could not back her vote by physical force but also by reason of her intellectual defects. Women cannot recognize that the precepts of public morality are not inferior in obligation to those of egoism and domestic morality. They brush aside the ideals of abstract justice and truth in the interest of those they love. Sir Almroth Wright believes that the suffrage movement derives its impetus chiefly from offended *amour propre*. The modern girl is not taught anything about women's physical disability or the defects and limitations of the feminine mind.

The Position of Eugenics: Karl Pearson's Appeal

Karl Pearson has addressed an appeal to the *Times* on the position of eugenics as a science. He regards the current attitude of public opinion as at once disheartening and exasperating. The founder of the science, Sir Francis Galton, thought that progress toward increased race sufficiency could be made by two routes: (1) by the scientific study of heredity and environment as they bore on racial development, and (2) by a popular movement emphasizing the importance of these factors in national welfare, and the urging of their proper appreciation by legislators and social reformers. Several of those who were working on the subject differed from Galton as to the relative urgency of the two routes. They saw the danger that before the lines of the science were firmly drawn and substantial foundations laid the whole subject would be made ridiculous by the efforts of an uninstructed press to tickle the taste of a jaded public. This fear has been realized. The press now treats us to "eugenic" marriages, to "eugenic" babies, and to "eugenic" plays which have nothing whatever to do with the problem of race welfare; officials of eugenic societies submit to being interviewed with regard to well-advertised babies. Eugenics is rapidly developing into a topic for the poseur, the *Kongressbummler* and the paragraphist. Even eugenic publications and eugenic congresses are issuing statements with regard to such vitally important topics as insanity, mental defect or the influence of heredity and environment which are obviously or demonstrably incorrect. We have not yet nearly adequate knowledge on these topics. Years of patient work in medicosocial observation, in genetic experiment and in careful study of family history are needed before the laws of eugenics as a science can be dogmatically stated. When such dogmas are proclaimed in the name of eugenics as "at last it is possible to give definite advice to those about to marry or who do not wish to transmit their undesirable traits. Weakness in any trait should marry strength in that trait, and strength may marry weakness," we stand aghast at the evil worked by the rapid popularization of "eugenics" and recognize the certainty that a movement thus careless of its facts and vaunting in its conclusions must collapse. Pearson thinks that students of the science of race efficiency will be compelled more and more to drop that much-abused term and to class their work as the Germans have done, under the broad titles of race hygiene and genetics. Those who should have at heart the problem of race efficiency turn rather to the academic than the popular side of the movement. What is needed in this country, Pearson thinks, is in the first place knowledge, and this is to be obtained only by establishing in close connection with all our universities laboratories for the study of medicosocial statistics and for inquiries as to infant and child welfare, and institutes or farms for experimental breeding and for the study of experimental evolution.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 14, 1913.

Continuous Attacks of Angina Pectoris

At the Académie de médecine, which resumed its sessions October 7, Dr. Charles Fiessinger read an interesting paper on the "Prognosis and Treatment of Continuous Crises of Angina Pectoris," a subject on which the standard works generally give only vague information. These crises, which may be benign when the neuropathic element alone is the cause, on the contrary are very serious and frequently the cause of death when a renal, myocardic or aortic element is added. The fatal outcome may be avoided if care is taken to combat from the first hours the fatigue of the myocardium which these pains produce so easily. This is why one should avoid large doses of drugs. Small doses of morphin (2 mg. injections) every three hours with small doses of nitroglycerin (2 to 4 drops of alcoholic 1 per cent. solution two or three times a day) reinforced by the analgesic and tonic action of an ice-bag on the cardiac region will usually subdue the attack. A milk and water diet should be rigorously maintained, as well as absolute rest in bed. If the violence of the attack brings on cardiac failure (extrasystolic tachycardia, weakness of pulse) the use of theobromin (two powders, each 0.5 gm.) and injections of camphorated oil will ordinarily put the heart to right if the treatment with small doses of morphin and the applications of the ice-bag have been used from the first.

An Article by Paul Bourget on Professor Poncet

One of our most celebrated writers, Paul Bourget, has devoted some eloquent pages in the *Revue hebdomadaire* to the memory of Professor Poncet, whose death I mentioned in a previous letter (THE JOURNAL, Oct. 4, 1913, p. 1307). Bourget attempts to explain how this active surgeon became in his later years the pathologist to whom medicine owes the theory of tuberculous and inflammatory rheumatism—how the man of action became the man of reflection. There was always in Poncet this spirit of investigation which was not satisfied in a specialty, however brilliant it might be. This is shown by his researches on actinomycosis. But to devote himself to investigation in full maturity when circumstances and his own ability made of him without possible rivalry the first surgeon of the southeast of France—this was a most heroic resolution. Bourget believes that Poncet was impelled to take it by the legitimate and noble desire of a glory that might survive him. The destiny of great surgeons and great physicians who are only superior practitioners is somewhat pathetic in that nothing durable remains of their talent. What remains of Dupuytren, for example? An illustrious name, nothing more. Apropos of Trousseau, Lasègue, with a melancholy which he did not seek to hide, spoke of "actors, birds of passage like us." When the physician leaves behind him a discovery of permanent value in science, the case is otherwise. There were, no doubt, in the seventeenth century practitioners who surpassed William Harvey by renown and skill. Where is their work? What memory of them remains? Harvey, having discovered the laws of the circulation of the blood, is immortal. What the theory of irritation was for Broussais, that of the specificity of diseases for Bretonneau and Trousseau, that of the glands of internal secretion for Brown-Séquard, that of hysteria for Charcot, the hypothesis of inflammatory tuberculosis was for Poncet. If he has not established it definitely, he has given it sufficient standing so that even his adversaries are obliged to recognize its great importance.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 19, 1913.

Personal

October 4. Surgeon-General Dr. Zunker, for many years physician for the Empress, celebrated his seventieth birthday.

October 4, the general staff surgeon of the Prussian Army, His Excellency v. Schjerning, celebrated his sixtieth birthday. This man, who has rendered important services in the matter of military sanitation and enjoys general respect on account of his personal qualities, was the object of a cordial ovation on the occasion of his celebration. The Emperor, also, with whom v. Schjerning is in close confidential relations, gave expression in a telegram to his congratulations and to his conviction that the sanitary corps of the army under the leadership of v. Schjerning would properly fulfil its high office.

October 5, Professor Quincke, who for a number of years has been in retirement, celebrated the fiftieth anniversary of his doctorate.

Death of Kutner

Prof. Robert Kutner, director of the Kaiserin Friedrich-Haus for medical postgraduate study, died October 5 after a short illness at the age of 46, as previously mentioned. Kutner devoted himself to the development of medical postgraduate education in Germany, and inasmuch as other countries copied the organization instituted by him, he performed important service even outside of Germany. In 1901 he founded with the cooperation of the Department of Education the Prussian central committee for postgraduate medical study, the one organization which combined all of the organizations already existing in Prussia for the same purpose and had as its object the extension of free courses and exercises over the entire state. Very soon there were formed in addition to the central committee, local committees in many universities and large cities, and even the academies for practical medicine in Cologne and Düsseldorf were included. Professor v. Bergmann promptly joined the central committee and accepted the presidency (since Bergmann's death Waldeyer is president). Kutner was general secretary.

In 1902 Kutner organized an exposition of appliances to aid in medical teaching and this formed the foundation for a museum, to house which a plan for a special building was started in 1903. In view of the great interest that the Empress Frederick had exhibited in all forms of medical postgraduate instruction, the Empress-Frederick foundation for medical postgraduate instruction was formed with the cooperation of the high financial interests and the building was constructed on the Luisenplatz. It was dedicated in 1906 in the presence of the entire imperial family. It constitutes an international object of interest in medical Berlin. In addition to a large and several small auditoriums, it contains a collection of teaching materials which has meanwhile very greatly increased, a remarkable collection of antique surgical instruments and an exhibition of "The Physician and Medicine in Art," collected by Professor Holländer. It contains besides a large permanent industrial exposition with reference to medicine.

Kutner was in charge of the building which then afforded him further headquarters for his later organization of the national committee for medical postgraduate instruction, at first with Renvers and after his death with Werner Körte as president, and finally for the international committee of which Waldeyer is president, and with which all civilized nations are connected. In both of these organizations Kutner was general secretary. In this capacity a few weeks ago he was engaged at the session of the international committee in London, and immediately after his return he was taken sick.

He was born in 1867 in Uckermünde, the son of a physician, and studied in Berlin, Kiel, and Freiburg and with the urologists Nitze, in Berlin, Dittel in Vienna, and Guyon in Paris. He was licensed in 1891 and settled in Berlin in 1892 as a urologist, and did good work in his specialty. He was one of the first to succeed in taking photographic views of the interior of body cavities, and in addition to a number of minor articles and the description of instruments invented by him, he wrote a monograph entitled "The Technic and Practical Importance of Asepsis for Treatment of Urinary Affections" (Die Handhabung und praktische Bedeutung der Asepsis für die Behandlung der Harnleiden), and the text-book on "The Instrumental Treatment of Urinary Affections" (Die instrumentelle Behandlung der Harnleiden). He founded and edited also the *Zeitschrift für ärztliche Fortbildung*, the official organ of the general postgraduate work.

Loeffler Takes Charge of Berlin Institute

Professor Loeffler, the hygienist of Greifswald, has succeeded Professor Gaffky as director of the Institut für Infektions-Krankheiten. With Gaffky the institute loses a scientist of international reputation, who has performed marked service in various fields of hygiene and bacteriology. He was born Feb. 17, 1850, at Hanover, and studied as a pupil of the Kaiser Wilhelm Academy for military education in Berlin, and received a physician's license in 1875. In 1880 he was assigned to the Imperial Health Office, and here Robert Koch incited him to his pioneer work on the causes of infectious diseases. Some years later he went as a member of the cholera expedition under the leadership of Koch to Egypt and India. During this expedition Koch, as is well known, discovered the germ of cholera. Together with Koch, he made the noted report on the work of this expedition.

When Koch in 1885 assumed the newly instituted professorship of hygiene in the Berlin University, Gaffky became his successor in the health office. Soon after he was appointed professor of hygiene at the University at Giessen, and in 1892 during the cholera epidemic he gave very successful assistance as the advisor of the authorities at Hamburg, and in 1897 he headed the imperial commission sent to India for the investigation of the plague. In 1904 he succeeded Robert Koch as head of the Institute for Infectious Diseases in Berlin. Gaffky took an active part in the development and progress of modern bacteriology and made valuable contributions on disinfection, on the most important infectious diseases, on sausage and meat poisoning, etc.

Like his predecessor, Loeffler was one of the earliest colaborers with Robert Koch, and is one of the most noted of living bacteriologists. He was born June 24, 1852, at Frankfort, a. O., where his father, a prominent army surgeon later the director of the Pepiniere (an army preparatory school) in Berlin, was then a regimental surgeon. After a short period of study at Würzburg, young Loeffler attended the Kaiser-Wilhelm Academy in Berlin, and after he received his license in 1875 was first an army surgeon at Hanover and later at Potsdam.

In 1879 he received an appointment to the Imperial Health Office in Berlin where he worked at first in the chemico-hygienic laboratory under Sell and Wolffhügel. A year later Robert Koch came to the health office and asked Loeffler to undertake work in his laboratory. This change decided his later course. He took an active part in the first work performed by Koch in the Health Office on infection and disinfection, and then took up special work on immunity. In 1881 he discovered a mouse bacillus against which he was able to immunize rabbits after a single infection. After work on the germ of glanders he discovered in 1882 the diphtheria bacillus and showed methods for its recognition and cultivation and thus laid the foundation for the exact diagnosis of diphtheria and the later antitoxin treatment of Behring. In 1884 he was appointed staff surgeon to the Kaiser-Wilhelms-Akademie where he continued his work as investigator. After he joined the Berlin faculty in 1886 as privat-docent for hygiene he was called to Greifswald in 1888 as professor of hygiene. Here in the course of years he published numerous articles on bacteriology and hygiene, and many times he received commissions from the government for the special investigation of epidemics.

He applied himself chiefly to an all-round investigation of infectious diseases in animals, and among other things he paid special attention to the foot-and-mouth disease. He was president of a commission for investigation of foot-and-mouth disease, and later published a method for protective vaccination. He discovered the bacillus of swine erysipelas and of swine fever, and again made his name known throughout the world when a typhus epidemic broke out in his laboratory among the mice which proved to be dangerous only for mice. He cultivated the germ of this epidemic and by feeding the germs to mice was able to accomplish their wholesale destruction. In consequence of this, the Greek government in 1892 summoned him to Thessaly where he succeeded in suppressing a plague of mice. Loeffler has produced notable works in all fields of bacteriology and hygiene. Twice he refused a call to leave Greifswald, first to Marburg and then to the Veterinary College in Berlin. It is generally the source of great gratification that he has now accepted the call to Berlin.

Marriages

William Duncan Reid, M.D., Newton, Mass., to Miss Blanche Adeliene MacDonald of Tara, Ontario, September 23.

Valloyd Adair, M.D., Lorain, O., to Miss Mabel MacRae of St. George's Channel, N. S., at Worcester, Mass., October 6.

George William Keil, M.D., Loma Linda, Cal., to Miss Florence Heldmann of West Arlington, Md., September 10.

Wilmer Amos Hadley, M.D., League City, Tex., to Miss Sue Kathleen Kinsley, Dickinson, Tex., October 4.

Harry William Benson, M.D., Oakland, Neb., to Miss Grace M. Bohne of Rochester, N. Y., recently.

John Lafayette Gordon, M.D., to Miss Edith Henrietta Dickey, both of Columbus, O., September 24.

John Carter Rowley, M.D., Brookline, Mass., to Miss Sarah Root, Dunham, Hartford, Conn., October 11.

Emmet L. Hawkins, M.D., to Miss Vera Spetman, both of Council Bluffs, Ia., at Omaha, October 14.

Rollin G. Hendricks, M.D., Indianapolis, Ind., to Miss Grace Newcomber, Noblesville, Ind., October 15.

John Albert Konzelman, M.D., St. Louis, Mo., to Miss Bertha B. Blair, Sparta, Ill., October 16.

Noah Jefferson Goshorn, M.D., Daviess, Ind, to Miss Susie Tate, St. Charles, Mo., October 8.

Lewis J. Jones, M.D., Middlesboro, Ky., to Miss Mary Johnston, Cumberland Gap, October 16.

John S. Pyle, M.D., Toledo, O., to Miss Mary A. Raynor of New York City, *in Detroit, October* 8.

Paul A. Remington, M.D., Missoula, Mont., to Miss Jennings of Cavalier, N. Dak., October 8.

Maurice Stein, M.D., Millerstown, Pa., to Miss Sarah Rubin, Baltimore, Md., September 13.

William M. Johnson, M.D., Peckham, Okla., to Miss Hylda M. Roche, Wichita, Kan., October 15.

Ralph A. Bowdle, M.D., *to Katherine* L. Eager, M.D., both of Salt Lake City, *October* 15.

Bruno Getzlaff, M.D., Sutton, Neb., *to* Miss *Frances* Wilson of St. Louis, September 2.

Edwin Francis Jones, M.D., to Miss May Ethel Campbell, both of Barton, Vt., October 20.

Peter L. McKallagat, M.D., Lawrence, Mass., to Miss Mary Genevieve Conlon, October 14.

Isadore Michael Trace, M.D., to Miss Miriam G. Hackner, both of Chicago, October 14.

Harold M. Camp, M.D., Monmouth, Ill., to Miss Rose Laura Fox, *Chicago*, October 16.

Minerva Louise Blair, M.D., Ann Arbor, Mich., to Claude Pontius, September 22.

John Edward Dolan, M.D., to Miss *Josephine* Connell, both of Chicago, October 15.

Lowell Sidney Goin, M.D., to Miss Dawson, both of Manilla, Ia., recently.

Deaths

Joseph Lactance Archambault, M.D. Laval University, Quebec, 1870; a Fellow of the American Medical Association and once president of the Albany County Medical Society, vice-president of the Medical Society of the State of *New York*, and president of the Cohoes Society for the *Prevention of* Tuberculosis; gynecologist to the Cohoes City Hospital, and for thirty-six years choirmaster of St. Joseph's church; died at the home of his daughter in Montreal, October 16, aged 65.

Jonathan Burmond Garber, M.D. Jefferson Medical College, 1890; a Fellow of the American Medical Association, and a member of the Mississippi Valley Medical Association; a prominent practitioner of Dunkirk, Ind., *who* was crushed under his overturned automobile near Hartford City, *September* 30, died in *Hartford* City, October 3, from his injuries, *aged* 57.

George Drury, M.D. Long Island College Hospital, Brooklyn, N. Y., 1878; a member of the Medical Society of *the* state of New York, and for thirty-five years a practitioner of Brooklyn; died in the Skene Sanatorium, Brooklyn, October 20, following an operation for disease of the intestines, aged 56.

Sylvester Rush Weaver, M.D. Vanderbilt University, Nashville, Tenn., 1894; a Fellow of the American Medical Association, and a specialist on diseases of the eye, ear, nose and throat of Sherman, Texas; aged 41; died at his home in that city, September 24, *from carcinoma* of the stomach, for which he had undergone operation several months before.

Albert Harrison Moore, M.D. Jefferson Medical College, 1896; a Fellow of the American Medical Association; mayor of Ashland, Ky.; local surgeon of the Chesapeake and Ohio System; formerly coroner of Boyd County; one of the most prominent practitioners of northeastern Kentucky; died at his home in Ashland, September 26, aged 42.

George Summers Brown, M.D. Jefferson Medical College, 1895; *a member of the* Medical Association of the State of Alabama and Southern Surgical and Gynecological Society; a leading surgeon of *Birmingham; died in* Lakeside Hospital, Cleveland, O., September 28, after an operation for the removal of gall-stones, aged 53.

Arthur Adelbert Downs, M.D. Baltimore Medical College, 1897; a Fellow of the American Medical Association, and the National Antituberculosis Society; who was instrumental in the establishment of the Chase Sanatorium, Fairfield, Maine; died at St. Barnabas' Hospital, Portland, October 13, from septicemia, aged 39.

***Thomas Alexander Elder,* M.D.** Rush Medical College, 1868; Bellevue Hospital Medical College, 1872; a member of the Ohio State Medical Association; a veteran of the Civil War and one of the oldest practitioners of Wooster; died in the Presbyterian Hospital, Chicago, October 19, from heart disease, aged 70.

George Turner Hesser, M.D. Cooper Medical College, San Francisco, 1895; a Fellow of the American Medical Association; local surgeon of the *Southern Pacific System at* Folsom City, Cal.; died in St. Francis Hospital, San Francisco, September 22, after an operation on an infected gall-bladder, aged 50.

William John Bradley, M.D. Rush Medical College, 1890; a Fellow of the American Medical Association, and a member of the staff of St. Luke's Hospital, Cedar Rapids, Ia.; one of the ablest and best-known *practitioners of* Cedar *Rapids;* died in St. Luke's Hospital, October 2, from typhoid fever, aged 47.

Reuben E. Brokaw, M.D. Western *Reserve* University, Cleveland, 1895; a Fellow of the American Medical Association; died at his home in Portland, Ind., July 26, from acute general streptococcus infection, aged 45.

Francis Loring Banfield, M.D. Bowdoin Medical College, Brunswick, Me., 1881; a Fellow of the American Medical Association; died at his home in Worcester, Mass., June 25, from angina pectoris, aged 69.

Arthur Scott Koenig, M.D. University of Pennsylvania, *Philadelphia*, 1901; a Fellow of the American Medical Association and a practitioner of Lewistown, Pa.; died in Philadelphia, about September 21.

Edwin C. Reames, M.D. University of Buffalo, N. Y., 1895; a member of the Medical Society of the State of New York; died at his home in Canastota, September 25, from nephritis, aged 43.

Henry H. Havens, M.D. Medical College of Ohio, Cincinnati, 1880; a member of the Ohio State Medical Association; died at his home in *Tippecanoe* City, O., from erysipelas, aged 56.

William Cecil Stafford, M.D. Detroit (Mich.) Medical College, 1872; for twenty-five years a practitioner of Youngstown, Ohio, died at his home, September 14, aged 66.

Frank P. Witham (License, years of practice, Ohio, 1896); *for* thirty-five years a practitioner of Withamsville, *O.; died* at his home, September 29, aged 60.

Walter Z. Twitchell (license, Maine, 1895); for *twenty-five* years a practitioner of Andover, Maine; *died at his home in* that city, September 13, aged 58.

Ezra E. Tope, M.D. Starling Medical College, Columbus, Ohio, 1880; died at his home in Scio, Ohio, from sarcoma, August 17, aged 62.

R. N. Taylor, M.D. Chattanooga (Tenn.) Medical College, 1901; of *Chattanooga;* died in a sanatorium in *that* city September 2.

William G. Todd, M.D. Rush Medical College, 1844; of Chicago; died *at* the home of his daughter *in that city, August* 7, aged 91.

Thomas L. Williams, M.D. University *of* Louisville, Ky., 1869; *died at* his home in Pulaski, Tenn., September 18, aged 81.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

MEDICAL JOURNALS AND THE GREAT AMERICAN FRAUD

The responsibility of medical journals for the continued existence of at least a part of the "great American fraud," has been referred to in these pages many times. Within the past few weeks The Journal has called attention to the inconsistency of reputable physicians of high ideals lending their moral, and often financial, support to those medical journals whose advertising pages are a disgrace to the profession. Specifically, the *Medical Times*—originally a homeopathic medical journal—has been referred to, among others, as an example of this type of journalism. It must, however, be regarded simply as a type, for it is no better and no worse than many other medical journals. Several letters have been received on the subject, some of which we reproduce. The first one is from Dr. George G. Ross of Philadelphia:

> "I was very much jarred on receiving the last issue of The Journal to find under the Propaganda for Reform an article concerning the *Medical Times*, among the list of whose contributing editors my name appears. I enclose you herewith a copy of my letter of resignation to the *Medical Times*. I have a very dim recollection of what occurred at the time that I was asked to give my name as a contributing editor. As I recollect it, however, at that time the journal was a respectable and ethical publication. I had been asked by a friend of mine to write an article giving my opinion of the effects of college athletics on undergraduates. This was at the time that Dr. Stokes had issued his order about athletics at Annapolis. I want personally to thank you and the committee for the exposure of this journal and for having drawn my attention to the fact that I was unwittingly aiding and abetting such a journal. I trust that if you have space in some future number of The Journal, you will do me the justice to publish all or part of this letter."

Because he feels that he has "unwittingly been put in an unfavorable light," Dr. James A. Babbitt, also of Philadelphia, sends The Journal a copy of a letter written by him to the editor of the *Medical Times*. Here it is:

> "For reasons of which you are probably cognizant, I deem it advisable to resign from the board of contributing editors of the *Medical Times*, and desire that this resignation be accepted at once and my name not appear in further issues."

What shall be done, asks Dr. Sidney Thompson of Humboldt, Tennessee, in such cases as the following? Says Dr. Thompson:

> "In the Propaganda for Reform, in The Journal, October 18, 1913, in closing your article on 'Medical Journals and the Great American Fraud,' you say: 'The physician who permits such journals to come to his office must share with the paid subscribers the responsibility for the low standard of medical journalism.' Now I agree with you in everything you have said about the *Medical Times*, but what I want to know is how to keep such journals from coming into your office. The *Medical Times* has been coming to me for a number of years with repeated duns for the subscription price. I have written to them several times that I did not want the journal and never expected to pay for it, but still it comes. I have a vague recollection that I bit *at an offer* to send it three or four months free, not knowing what it was, but I never authorized them to enter my name as a regular subscriber."

The simplest course in such a case as that described by Dr. Thompson, is to write *on the* unwelcome publication the word "refused" and either drop it in the nearest mail-box or hand it back to the postman. The courts have held that a person who continues to accept publications is legally liable for the payment of such publications. The postoffice department, however, has ruled that a magazine—either monthly or weekly—may not be sent at second-class rates for more than one year after the expiration of a bona fide subscription. At the expiration of that time, stamps must be affixed and the publications sent at third-class postal rates.

SOME DEAFNESS-CURE FRAUDS

The name of the deafness-cure quack is legion. Some carry an alleged cure for deafness as a "side-line" for other medical fakes they may be exploiting; some sell on the mail-order plan a worthless "course of treatment," while still others, and these probably are in the majority, dispose of, at an exorbitant price, devices that are trivial, worthless, and often dangerous. Many of the American deafness-cure quacks do an international business. Particularly do they invade that verdant field for medical fakers, the British Isles. Some of the most blatant of these have been exposed on the other side by Evan Yellon, editor of the *Albion Magazine*, a publication issued in the interests of the deaf. Mr. Yellon is a journalist of the militant type. Himself a sufferer from deafness, he appreciates the viciousness of the victimization carried on by the deafness-cure quacks. While a layman, Mr. Yellon expresses himself with no uncertainty regarding the dangers of quackery. Says he:

> "There is the very world of distinction between the qualified specialist and the quack. In one case you have a man . . . whose special education and training will have required the sinking of a round sum in capital plus many years of life . . .
>
> "On the other hand, in the quack, we have in the majority of cases a man who does not possess even a sound general education, and who very often does not understand the elements of ordinary personal cleanliness. . . . He is a man moving in the dark, and thus making only blind shots . . . He is a man of mysterious methods and secret remedies, and his vogue to-day is at once a significant token, and, as I have said, a menace to the community."

These words, while written for British readers, apply with equal truth and equal force to the American fakers who sell deafness "cures."

The following paragraphs have been written for the purpose of making more complete a pamphlet,[1] we have in preparation especially for the enlightenment of the public on the subject with which it deals. The numerous inquiries that have been received during the past three or four years regarding the concerns specifically dealt with in the matter that follows is The Journal's excuse for publishing it here.

"Dr. L. C. Grains Company" née "Dr. Guy Clifford Powell"

Dr. Guy Clifford Powell, the deafness-cure quack of Peoria, Ill., was dealt with at some length by Mr. Adams in the "Great American Fraud" series. Powell's particular fake was what he called the "Electro-Vibratory Cure for Deafness," for which he asked $100 in his first letter to prospective victims, but—sliding swiftly through a series of form letters—finally offered to take $15 if the quarry seemed in any danger of escaping. As Mr. Adams said, Powell's Cure "isn't worth $100 or $30 or $25 or 25 cents, except as its patent right owned by the 'discoverer' is an asset in his swindling operations." Powell called himself an "International Specialist"; if he had said international quack, he would have been correct, for he advertised heavily on both sides of the Atlantic.

In due time, Powell went the way of all flesh, but his fraudulent business was too valuable an asset, apparently, to let die. It is now being carried on by a concern known as the "Dr. L. C. Grains Company," and is operated from Chicago instead of Peoria. The Dr. L. C. Grains Company is said to have the following officers:

Floyd R. Perkins, president.
J. Howard Start, vice-president.
George H. Ely, secretary and treasurer.

---

[1] "Deafness-Cure Frauds," price 10 cents.

None of these gentlemen, it seems, are physicians or are even remotely connected with medicine or pharmacy. They are, as is so often the case in quack concerns, advertising men and operate an advertising agency—the Charles H. Fuller Co., Chicago. According to the Chicago City Directory, Messrs. Perkins, Start and Ely hold the same official positions in the Charles H. Fuller Company that they hold in the Dr. L. C. Grains Company.

L. C. Grains seems originally to have had a small mail-order fakery of his own. "Red Clover Extract" and "Curo Grains of Life" were his specialties. After the officers of the Charles H. Fuller Company bought out the Powell factory and moved it, bag and baggage, from Peoria to Chicago, L. C. Grains had the title "Dr." added to the concern. So far as our records show, and they are exceedingly complete, L. C. Grains has absolutely no claim to the title of doctor of medicine.

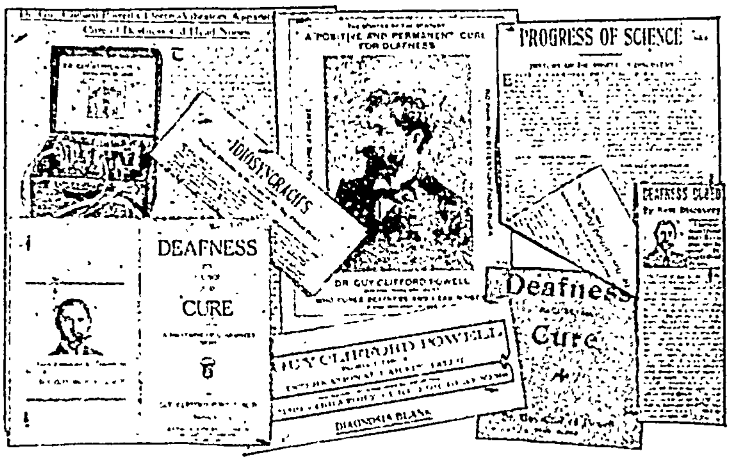

PROGRESS OF SCIENCE
A POSITIVE AND PERMANENT CURE FOR DEAFNESS
IDIOSYNCRACIES
DEAFNESS CURE
DR GUY CLIFFORD POWELL
Deafness Cure
DIAGNOSIS BLANK

Fig. 1.—Photographic reproduction of some of the old advertising put out by Dr. Guy Clifford Powell. It is used practically in its entirety by the Dr. L. C. Grains Co., successors to Powell's fakery. Compare it with Figure 2.

The advertising matter, booklets, leaflets and the general paraphernalia of the mail-order medical fake issued by the Dr. L. C. Grains Company is practically identical with that used by Powell. About the only changes that have been made are those of substituting the words "Dr. L. C. Grains Company" for "Dr. Guy Clifford Powell." The "International Specialist" has become the "International Specialists." So far as we have been able to discover the only physician connected with the Dr. L. C. Grains Company is one R. C. McFall. The records show that a woman of that name was graduated by the, since, defunct Indiana Eclectic Medical College in 1888. Dr. McFall seems to have practiced for some years in Indianapolis. Since 1900, however, she has been in Illinois, most of the time, apparently, in Chicago. For an "international specialist," she seems to be little known. Needless to say, Dr. McFall is not a member of the Chicago Medical Society.

In brief, the Dr. L. C. Grains Company, which derives its profits from the unfortunate deaf, is a fraud as was its predecessor, the Guy Clifford Powell concern.

Edward E. Gardner

Dr. Edward E. Gardner is in the "deafness-cure" business at 38 West Thirty-Third Street, New York City. In his advertisement he calls himself "a celebrated New York Aurist"; a notorious New York quack would be nearer the truth. Gardner says, speaking impersonally of himself:

> "His diploma is endorsed and he is given the honor to practice medicine not only in New York State but by searching tests and thorough examination is given endorsement by the State Boards of New York, Pennsylvania, Illinois, Massachusetts, Vermont, and, in fact, all the states and territories in the United States. He is also allowed to send his treatment to England, Scotland, Ireland, France, Germany, Italy, and to all parts of the globe. Very few doctors have had this distinction bestowed on them. This means that you can rely on his treatment."

As lying is the chief stock-in-trade of quackery, Gardner ought to be highly successful in his chosen calling, for it would be hard to condense into smaller space than the matter just quoted a greater number of direct and inferential falsehoods.

In 1890 Gardner seems to have been practicing in the state of Illinois and Pennsylvania, but soon thereafter is alleged to have been connected with the Copeland Medical Institute at Fifth Avenue, New York City. About 1900 he and his father-in-law are said to have opened an office on West Thirty-Fourth Street, New York City, where he exploited a "catarrh cure" under the name of the Norma Medical Association. Still later, he moved to his present address where he and his brother, E. A. Gardner—who is not a physician—conducted business under the style "Drs. Gardner" until official intervention caused a change in title to "Dr. Gardner."

Gardner was a stockholder in the "Help-to-Hear Company," a cruel swindle put out of business by the federal authorities in 1906. In 1907 Gardner went into bankruptcy with about $13,000 liabilities and no available assets. The Norwich Pharmacal Company is said to have been one of his largest creditors.

Gardner's methods are typical of the mail-order quack: Letters, a sliding scale of prices and the other stock-in-trade of the ilk. Like all mail-order fakers, Gardner disposes at intervals of the letters he receives from victims. A letter-broker concern in New York City has advertised over 12,000 of Dr. E. E. Gardner's "deaf letters" for sale or rent. Those who write Gardner are sent a "free trial treatment" consisting of a small amount of ointment to put into the nostrils, some solution to drop in the ear and some tablets to take internally. The "regular treatment," we are told, costs $5 and lasts one month. This price he keeps up for three or four letters and then cuts it to $2.60. Some time later he writes again, making a "special rate" of $3 for a month's "treatment." He guarantees "to bring good results in three months," which "at $3 a month would be $9." He offers to cut this in two and to send a three months' treatment for $4.50 and says: "Now I think this is a grand offer, I think one that you ought to accept." With this letter he encloses a slip describing other "cures" that he handles as side-lines. His "special rheumatism treatment including medicines" comes at a dollar a month; constipation he will handle at 50 cents a month; insomnia costs a dollar, as do also hysteria, indigestion and blackheads. Taking it all in all, Gardner seems to fulfil all of the traditions of quackery. The deaf cannot do better than avoid him.

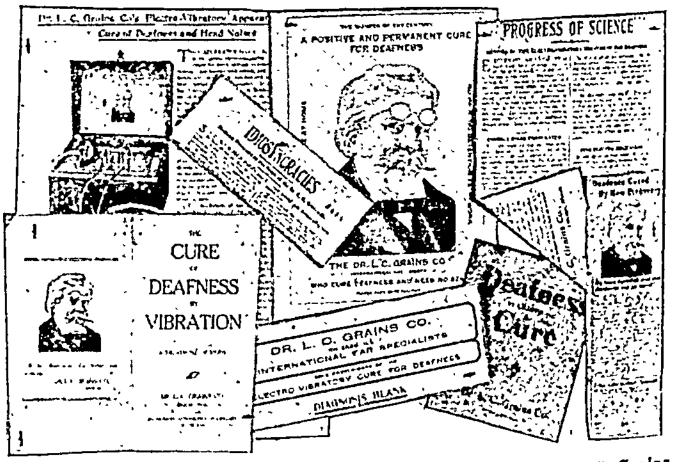

PROGRESS OF SCIENCE
A POSITIVE AND PERMANENT CURE FOR DEAFNESS
IDIOSYNCRACIES
THE DR. L.C. GRAINS CO
CURE OF DEAFNESS BY VIBRATION
DR. L. C. GRAINS CO.
INTERNATIONAL EAR SPECIALISTS
ELECTRO VIBRATORY CURE FOR DEAFNESS
DIAGNOSIS BLANK
Deafness Cure

Fig. 2.—Photographic reproduction of some of the Dr. L. C. Grains Company, the name under which the officers of the Charles H. Fuller Company advertising agency continue Powell's frauds. Compare with Figure 1.

George P. Way Ear-Drum

George P. Way does business from Detroit, Mich. He sells what he calls a medicated ear-drum which—if we are to believe the advertising matter—is so wonderful that it enables a man who is so deaf that he cannot hear thunder to hear a clock tick thirty feet away! But, of course, we are not to believe what George P. Way publishes. Way claims to have cured himself of twenty-five years' deafness by means of his drums. He asks $5 a pair for them, but if you are not too anxious you will receive the usual follow-up letters and before long will be able to purchase not only a pair of ear-drums but also "a very unique instrument" that Mr. Way has christened "Blowena"—all for $5. Blowena is a "catarrh cure" which George P. sells as a side-line to his ear-drum offer.

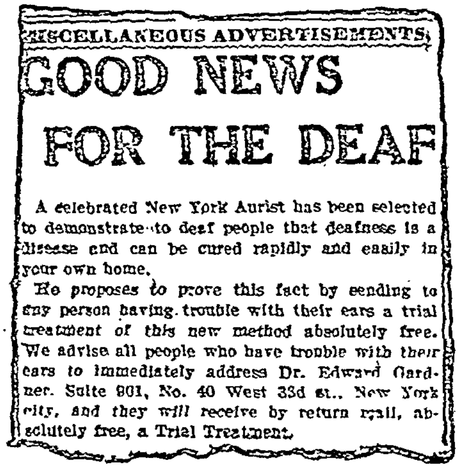
A study of the advertising matter that he has sent out during the past few years shows various discrepancies in the statements made at different times. In one of his earlier leaflets Way, who claims to have been an engineer, declares that before he "discovered" and "invented" his ear-drum he was so deaf that "it was with difficulty that I could hear the noises of my own engine." The later leaflet omits the sentence just quoted although the balance of the matter is practically identical. Why? Was the falsehood too raw, even as an asset to quackery? In the earlier leaflet, he said:

> "*I* have been granted patents in *all* foreign countries as well as in the United States."—[Italics ours.—Ed.]

More recently, this has been toned down to:

> "Patents have been granted in foreign countries as well as in the United States."

This modification is explainable to those who look into the matter carefully. In the first place, it is *not* true that Way ever was granted patents "in all foreign countries"; in the second place, the elimination of the personal pronoun is doubtless due to the fact that the "medicated ear-drum" that Way sells is not his invention but the invention of Frances M. Way, his wife! Incidentally, Frances M. Way *is* the individual referred to in the advertising *matter thus:*



MISCELLANEOUS ADVERTISEMENTS

GOOD NEWS FOR THE DEAF

A celebrated New York Aurist has been selected to demonstrate to deaf people that deafness is a disease and can be cured rapidly and easily in your own home.

He *proposes to* prove this fact by sending to any person having trouble with their ears a trial treatment of *this* new method absolutely free. We advise all people who have trouble with *their* ears *to* immediately address Dr. Edward Gardner, Suite 901, No. 40 West 33d st., New York city, and *they will* receive by return mail, absolutely free, a Trial Treatment.

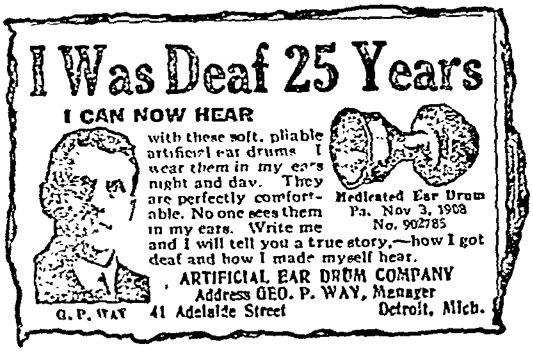
Fig. 3.—An advertisement of Quack Gardner in which he describes himself as "a celebrated New York Aurist."

> "Most important of all, I have with me Dr. F. M. Way, who is a well-known specialist of the ear, nose and throat . . ."

It is hardly necessary to say that Dr. Way is not a "*well-known specialist*"; actually she was graduated in 1902 by the *Detroit Homeopathic College*, a low-grade institution now defunct.

Way publishes comparatively few testimonials, for a quack. Although we have a full set of his *follow-up letters*, covering a period of some years, there are less than a dozen testimonials all told. Yet, Mr. Way claims that he has hundreds on *file! One* testimonial that he has featured *to the extent* of publishing not only a fulsome letter but *a photograph* of the person giving it came from a young woman who, the public was told, "was so deaf *that I* was attending a deaf-*and-dumb school.*" She bought a pair of Way's ear-drums, and "*now* can *hear a clock* tick in any part of the room." A physician was written to who lives *in the same* town as this young woman. He declares *that the girl* has never been extremely deaf and her hearing is not yet restored.

The Way "medicated ear-drum" itself *is a* particularly vicious little device. While there is *nothing in the advertising* matter sent out by Way to make this clear, it is a fact that the drums are specially designed for individuals whose tympanic membrane ("ear-drum") is ruptured. It is a rubber contrivance enlarged at each end and with a constricted portion in the center. One of the enlarged ends is supposed to be pushed into the middle ear. The drums are recommended for discharging ears; actually they are about the worst things that could be used *in such a condition.* The amount of damage a piece of fakery of this kind can do is almost beyond belief. But it furnishes the Way family an income which they are willing to divide with those publications that are not above participating in the profits of quackery.



I Was Deaf 25 Years

I CAN NOW HEAR

with these soft, pliable artificial ear drums I wear them in my ears night and day. They are perfectly comfortable. No one sees them in my ears. Write me and I will tell you a true story,—how I got deaf and how I made myself hear.

Medicated Ear Drum
Pa. Nov 3, 1908
No. 902785

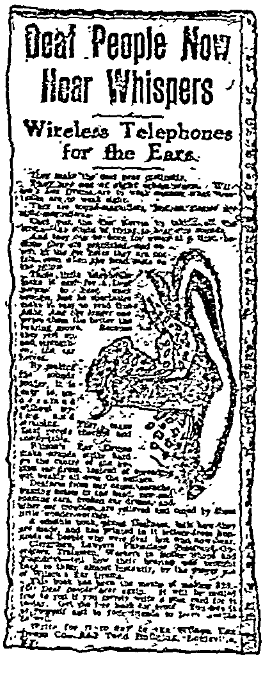
ARTIFICIAL EAR DRUM COMPANY
Address GEO. P. WAY, Manager
41 Adelaide Street Detroit, Mich.

Fig. 4.—George P. Way's advertisement. The Way Ear-Drum never cured a case of deafness but might easily prove a serious injury to the deaf.

The Wilson Ear Drum

The Wilson Ear-Drum, exploited by George H. Wilson, Louisville, Ky., is another of the small rubber contrivances, made to slip into the external auditory canal (the outer ear-passage), of which there are so many *on* the *market.* It is advertised under the usual fraudulent claims and is just as worthless as most devices of this sort and just as potent for harm. One might imagine that plain business judgment would prevent Wilson making claims that every person who has reached the age of *accountability,* whether he is technically educated or not, would be able to recognize as evident falsehoods. In the world of quackery, however, no such restrictions seem to hold. As Mr. Adams has so well remarked: "Our national quality of commercial shrewdness *fails* us when we go into the open *market* to purchase relief from suffering." Otherwise no quack could make such claims as Wilson makes and "get away with them." Here, for instance, is what is claimed for the Wilson Ear-Drum:

> "It is the only device in the world that collects sound waves and *focuses* them to one point.'
>
> "It is the only device in the world constructed on scientific principles."
>
> "It is the only device in the world that is made to fit the orifice of the ear."
>
> "It is the only device in the world that cannot possibly injure the hearing."



Deaf People Now Hear Whispers

Wireless Telephones for the Ears.

Fig. 5.—A Wilson Ear-Drum advertisement. These worthless little rubber devices are described as "wireless telephones."

These are only a few of the superlative virtues assigned by Mr. Wilson to his trumpery piece of rubber. Elsewhere he calls them "wireless telephones for the ears," and claims that by their use "every condition of deafness or defective hearing is being helped and cured . . ."

Wilson sells his ear-drums on the mail-order plan; also he travels over the country selling them. In some of his advertising Wilson claims to have been president of the Louisville School Board. This will not surprise those familiar with the exploitation of medical frauds who know that the second largest city in the United States until recently had for its president of the Board of Education an individual who made his money out of the sale of a "cure" for sore eyes and a correspondence school of spectacle fitting. Wilson also claims to have been "honored with the presidency of the Kentucky Society Sons of the American Revolution," which, while doubtless a splendid advertising asset for Wilson, does not do credit to the judgment of a presumably reputable organization.

The Wilson Ear-Drum, with "nickel forceps" and "drum inserters" thrown in, come at $5 a pair. As cures for deafness they are not worth five cents, except as they presumably furnish Wilson with an easy living.

THE CANADIAN REPORT ON THE FRIEDMANN "CURE"

Reference has been made to the action of the Canadian authorities on the Friedmann "cure," but the report has not heretofore been given in full. Here it is:

"In order to allay public excitement and to afford to the medical profession and people of Canada an authoritative statement regarding the value of Dr. Friedmann's treatment, the Canadian Association for the Prevention of Tuberculosis nominated a committee of five members to study and report on the cases inoculated by Dr. Friedmann at Montreal, Ottawa, Toronto, and London, Ontario. That committee has added to itself those physicians who have under observation the cases treated in these cities. The committee thus constituted begs to report that it has carefully studied the case histories of the patients inoculated by Dr. Friedmann. These number altogether 161, namely, for Montreal 55, for Ottawa 10, for Toronto 81, for London 15.

"As a result of our observations from March 11 to June 23, the following conclusions seem justifiable:

"1. The inoculations have neither constantly nor frequently been followed by any marked change in the clinical course of the disease.

"2. The cure or progress toward cure claimed by Dr. Friedmann for his treatment has neither constantly nor even frequently taken place in the time during which these cases have been under observation.

"3. Thus on investigation the committee finds that the results have been disappointing, and that the claims made for this remedy have not been proved, and that *nothing has been found to justify any confidence in the remedy.*" [Italics ours.—Ed.]

Correspondence

Preliminary Report of a Case of Sensitization to the May-Fly (Ephemera)

To the Editor:—In July, 1913, a patient consulted me for attacks of a distressing coryza with sneezing, lacrimation and a reddening of the eyes. He stated that these attacks came on during June and July and appeared to be brought about while driving in the evening whenever he encountered a swarm of those ephemerids commonly called "May-flies," "Canada soldiers," "fish-flies," etc. These insects, as is well known, are abundant in the region of the Great Lakes, the imago passing its brief existence in the air, at which time the female is fertilized. The attacks from which the patient suffered had begun a few years previously and without assignable cause. The symptoms were quite like those of hay-fever without asthma, and after each one, in the absence of a repetition of the usual exciting cause, a day or two was necessary for recovery.

In order to test the hypothesis of a sensitization to the ephemerid, a single insect was caught and shaken in a vial with about 2 c.c. of sterile saline solution. One drop of this solution was placed in the patient's right eye. In less than two minutes there was smarting and irritation of the eye, and within fifteen or twenty minutes a marked conjunctival redness and a pronounced chemosis developed, the other eye remaining normal. Three controls were tried with the same solution on presumably normal subjects with negative results. The reaction in the patient's eye from the experiment was so great, and was attended with so much physical distress for from twenty-four to twenty-six hours, that no subsequent experiments have been attempted; but I have in preparation some protein extractives from the dried insects, which may make further investigation possible, and I hope to make a later report in the matter. Whether the sensitizing agent of the ephemerid is a substance generally distributed through its body, or resides in the eggs, which are abundant, or in some other special organ or part is not yet clear.

I supposed that this peculiar form of sensitization had not been noted or reported by any other observer and was surprised to learn by personal communication from Mr. F. West of the Gratwick Laboratory in Buffalo that a similar case has been observed this year by Dr. F. W. Hinckel of that city.

If any cases of sensitization to this ephemerid have been recognized by others, I should be gratified for any information concerning them.

Harold Wilson, M.D.,
32 Adams Avenue West, Detroit.

Sterilization of Rubber Gloves by Boiling

To the Editor:—The method of sterilizing rubber gloves described by Dr. Ray Ernest Smith in The Journal, Oct. 18, 1913, p. 1475, is a good one when only one examination of the patient is required. I, however, prefer to boil them. I know then that they are absolutely safe. I put the gloves into a small pan of water, place it on an ordinary kitchen or oil stove, and let them boil a few minutes. This I do while I scrub my hands and arms with soap and water, using no antiseptic whatever. I allow cold water to run into the gloves to dislodge the hot, and draw them on while they are distended. After each examination I put the gloves back into the hot water and give them another boil. Frequent boiling of rubber gloves does not impair their quality if they are not roughly handled and if thoroughly dried after using. I believe that this is the safest, simplest and most satisfactory method of sterilizing gloves for obstetric work.

Walter A. Landry, M.D., Chester, Pa.

Exuberant Verbosity

To the Editor:—Has the editorial writer (The Journal, Oct. 18, 1913, p. 1464) overlooked the historical fact that the exuberant verbosity of legal forms was not an intoxication, but a species of graft? Old English law-clerks were paid so much a word or a line for engrossing legal documents, and in consequence the more words used, the greater the pay. Every synonym, nearly or distantly connected, was drawn in and duly inscribed. A sentence lingers in my memory, taken from an old English common-law form of indictment for maintaining a nuisance in which it is alleged that "divers odors, savors, smells, scents and stenches did issue, proceed and flow therefrom." As the principles of *lex scripta* are said to be immutable, so also appears to be its language; for the same quaint, archaic phraseology, scarcely altered except in spelling, is used in legal forms to-day as in the days of Good Queen Bess or in those of Bloody Mary.

Bernard Wolff, M.D., Atlanta, Ga.

Tuberculosis Among Schoolteachers.—Over a period of years 52.4 per cent. of the deaths among schoolteachers, between the ages of 25 and 34 were due to tuberculosis, while only 25.8 per cent. of the deaths among all persons in Michigan, between the ages of 25 and 34, were due to this disease. Among schoolteachers of all ages 27.6 per cent. of the deaths were due to tuberculosis, while among all persons of all ages only 9.4 per cent. were due to this disease.—*Bull. Mich. State Bd. Health.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPEN-AIR TREATMENT AND THE FLUELESS HEATER

To the Editor:—By an appropriate coincidence two editorials in The Journal of October 11 give the two sides of the theories of ventilation. The "Open-Air Treatment" editorial outlines the newer ideas, while the "Flueless Heater" represents the older teaching, that air may become vitiated and contaminated.

The teachers of the new philosophy authoritatively assume and proclaim that from their interpretation of a few experiments which they have made we can safely disregard any accumulation of carbon dioxid which may occur; that body exhalations or odors are of no ill effect, or if any effect is supposed to be produced, it is purely psychic; that the oxygen content cannot be decreased in an overcrowded room to cause any ill effect, but that the ill effects which do occur in crowded rooms are due to stagnation of air with high temperature and humidity, which disturb the heat balance of the body, and that all ill effects of overcrowding may be relieved by agitating the air to break up the air envelope of the body.

These conclusions which are so authoritatively proclaimed are based on a few laboratory experiments, altogether too few to permit definite conclusions to be safely drawn on a subject which concerns the health of millions of people.

The subject of an experiment carried on for a few hours in a laboratory may not be conscious of any ill effects. There may be no ill effects so far as he is concerned because of the wonderful adaptability of the human body to its environment; but to say that under similar conditions the millions of people in shop and factory would suffer no ill effects is an unwarranted conclusion.

The resistance of the human body may be perfect in an experiment of a few hours, but when it is exposed to the same conditions for months and years, the accumulating effect will result in deterioration of health and increase of disease and death.

The logical conclusion from this new idea of ventilation must result in a lowering of the standards of air purity and an indifference in the public mind to the need of any effort for efficient ventilation.

We should not be hasty to draw conclusions from insufficient evidence. Let the investigators gather and present their facts. The experimenters may lack the judicial temperament to properly interpret the facts which they gather. The subject of ventilation is still open and more facts should be observed and presented for consideration before we can draw definite conclusions.

John B. Todd, M.D., Syracuse, N. Y.

Answer.—Our correspondent is evidently unfamiliar with the literature when he declares that the laboratory experiments made on this matter are too few to warrant definite conclusions. We would refer him especially to the following articles:

Heymann: Ztschr. f. Hyg., 1905, xlix, 388.
Paul: Ibid., 1905, xlix, 405.
Erclentz: Ibid., 1905, xlix, 433.
Flügge: Ibid., 1905, xlix, 363.
Reichenbach and Heymann: Ibid., 1907, lvii, 23.
Hill, Rowland and Walker: *Jour. Physiol.*, 1911, xli,

References to a number of other articles dealing with the alleged toxic properties of expired air, together with a full discussion of the question, are given in an excellent article by Crowder (*Arch. Int. Med.*, January, 1911, p. 85; abstr., The Journal, Feb. 25, 1911, p. 622). The question of what constitutes "sufficient evidence" is always more or less a matter of personal experience in dealing with the question under consideration, and is always influenced temperamentally by the ease with which long-cherished beliefs can be abandoned.

There is no contradiction or inconsistency between the two editorials referred to. The oil- or gas-heater, in the very nature of the case, makes it essential that the windows and doors be closed if it is to produce the effect desired—that of raising the temperature. If it has no flue, then it means not only that the oxygen is consumed, with a corresponding amount of carbon dioxid produced, but, what is of much greater importance, if there is much imperfect combustion carbon monoxid, a definite active poison, is poured forth into the room.

TRYPSOGEN

To the Editor:—Can you tell me anything of the G. W. Carnrick Company, manufacturing chemists, New York? Do you know anything of their product Trypsogen for treatment of diabetes mellitus?

W. D. Casey, M.D., Walls, Miss.

Answer.—Besides exploiting a clay poultice—"Antithermoline"—the G. W. Carnrick Company appears to be chiefly concerned in the promotion of "internal secretion" specialties; a class of preparations the therapeutic value of which is problematical. Thus it markets the diabetes remedy, "Trypsogen" tablets, said to contain "the enzyme of the islands of Langerhans with the tryptic and amylolytic ferments of the pancreas" along with gold bromid and arsenic bromid; Secretogen Elixir, said to be "prepared from gastric secretin obtained from the pyloric antrum and pancreatic secretin from the duodenum, combined with the enzymes of the peptic glands, and one-twentieth of one per cent. HCl"; Secretogen Tablets, said to be "prepared from prosecretin and succus entericus obtained from the epithelial cells of the duodenum, combined with pancreatic extract"; Kinazyme, "a preparation of extract of spleen, reinforced with trypsin, amylopsin and calcium lactate."

While great claims have been made for Trypsogen and while it has been most widely advertised, it is the consensus of opinion of the most eminent students of the question that pancreas is not really efficacious in diabetes. Were it of any value in this disease, it would have won world-wide recognition for itself ere now, in view of the great enthusiasm with which the discovery of the relation of the pancreas to diabetes was received and of the enormous amount of clinical, as well as animal, experimentation that followed. As the conditions of experiment in this question are extremely complex, it is not surprising that occasionally apparently positive results should have been obtained. Were it really useful, it should have yielded positive results much more uniformly.

Furthermore, if pancreas were really efficacious in the treatment of diabetes mellitus, the addition of arsenic, of gold, of bromid would be entirely unnecessary.

Even were it granted that pancreas extracts are valuable in the treatment of diabetes, and that gold and arsenic also have beneficial effects, it is our opinion that Trypsogen should be considered an unscientific shotgun mixture, because fixed combinations of remedies of different potencies, such as arsenic, gold, bromid and pancreas, are therapeutically erroneous, as they do not permit of that accurate adjustment of dosage of each ingredient that is indispensable to obtain maximum benefit with minimum danger of poisoning.

Antithermoline and Trypsogen were at one time described in New and Nonofficial Remedies. These preparations were omitted when the Council's rules were revised some years ago.

When the Council was first organized it undertook only the correction of the most serious abuses that had become a part of the proprietary medicine business, and paid less attention to the therapeutic worth of a remedy; thus at that time it admitted both Antithermoline and Trypsogen to New and Nonofficial Remedies. Since then the Council has modified its rules to exclude unscientific mixtures marketed under names that are misleading or therapeutically suggestive. Accordingly it rescinded the acceptance of Antithermoline, which was essentially the official clay poultice, Cataplasma Kaolini, U. S. P. For similar reasons and because the therapeutic claims were held unwarranted Trypsogen has been omitted from New and Nonofficial Remedies.

It is to be regretted that the progress of research should be hindered and the value of genuine products of internal secretion be depreciated by confusion with such shotgun mixtures and asserted remedies, whose claims have received no scientific confirmation.

RADIO-ACTIVITY OF SPRINGS

To the Editor:—I should like to know the radio-activity of the different American and foreign radio-active springs as compared with the radio-activity of sea-water, particularly the water of the North Atlantic.

D. T. Quigley, M.D., North Platte, Neb.

Answer.—All naturally occurring waters, even rain-water, are somewhat radio-active; few figures, however, are available as to the degree of this radio-activity in the case of American waters. Schlundt (*Tr. Wisconsin Acad. Sc.*, 1910) reported the activity of the water of a well at Madison, Wis., to be 1.9×10^{-10} curies per liter (expressed in the international unit); that of certain springs in Wisconsin was two or three times as great. Schlundt and Moore (Bull. 395, U. S. Geological Survey) found the radio-activity of various springs in the Yellowstone Park to range from 0.2, or less, to 24×10^{-10} curies per liter. Lazarus (Handbuch des Radiums in Biologie und Therapie) states that the Gastein springs range from 116 to 524×10^{-10} curies; one spring at Johannisthal had an activity of 2,220.

Probably the most complete investigation of any American springs was that of Boltwood, in connection with the Hot Springs of Arkansas; the results, however, have never been made public. Some time ago The Journal wrote to the Secretary of the Interior requesting information on this subject. The department replied that "For administrative reasons this report was not published in its entirety," the only official statement being that the waters "are radio-active to a marked degree"—a statement which might have emanated from a patent medicine manufacturer. From statements made by Boltwood (*Am. Jour. Sc.*, 1905) and by Schlundt and Moore, it would seem that the water of at least one spring at Hot Springs has an activity of over 100 × 10^{-10} curies per liter. It would be interesting to know what the "administrative reasons" are which have prevented the publication of the whole truth concerning Hot Springs.

DRUGS WITH THERAPEUTICALLY SUGGESTIVE NAMES

To the Editor:—The following is the copy of a label on one of Merrell's bottles found by me at the company store at Berryburg:

100 PILLS GONORRHEA, 3 GRAINS

Pulv. Cubeos	1¼ gr.
Solid Copaiba	1¼ gr.
Sulph. Iron Exsic.	¼ gr.
Venice Turp.	¼ gr.

Dose 1 to 3.
From the Laboratory of the

WM. S. MERRELL CHEMICAL CO.
Manufacturing Chemists, Cincinnati, Ohio

I should like your opinion as to the sale of drugs by a large drug firm like that of William S. Merrell, which is supported by the physicians of this country.

R. D. STOUT, M.D., Berryburg, W. Va.

ANSWER.—Claiming that physicians demand that they be supplied with "a pill for every ill," most pharmaceutical houses supply not only Pills Gonorrhea, but also Pills Spermatorrhea, Pills Leukorrhea, Pills Dysmenorrhea, etc. On examining the price-lists of the larger pharmaceutical houses we find that Pills (or Tablets) Gonorrhea having essentially the composition given by our correspondent appear in the catalogues of Eli Lilly & Co., Frederick Stearns & Co., Parke, Davis & Co., and Sharp and Dohme, while Tablets Gonorrhea having a different composition are listed in the price-list of the H. K. Mulford Company.

The objection to therapeutically suggestive names for medicinal preparations has often been discussed in THE JOURNAL. The practice is an invitation to the thoughtless physician to prescribe without due consideration of the patient's needs and suggests counter-prescribing to the pharmacist. That the naming of remedies after the diseases in which they are to be used is not an economic necessity is best illustrated by the fact that E. R. Squibb and Sons are eliminating such therapeutically suggestive titles from their price-lists.

THE RECTOVESICAL POUCH

To the Editor:—Referring to Abstract 126 in THE JOURNAL, Sept. 27, 1913, p. 1082, I should like to ask if the term "pouch of Douglas" can be applied to the male? Embryologically speaking, there may be a pouch of Douglas in a man, but is this the case from a clinical-anatomic point of view—that is, has a man a pouch of Douglas? I understand that this pouch is formed by the recto-uterine folds of the peritoneum. I have recently had it demonstrated to me that a man could have "hysteria."

FRANK A. WOODWARD, M.D., Los Angeles.

ANSWER.—We know of no authority in English for giving Douglas any claim to the reflection of the peritoneum in front of the rectum in males, but the Germans are more generous and connect his name with that region in both sexes. Of the two patients referred to in the abstract, one was a *Wirthschaftsbesitzer*, the other a *Bauer, and the sentences in question* in the original German are: Zunächst rechter Pararektalschnitt zur Entleerung und Drainage des Douglasraumes and reichliche Spülung aller Teile der Bauchhöhle wobei fäkulente Massen, namentlich aus dem Douglas, ausgeschwemmt werden.

CATHETERIZING THE NEW-BORN—PROPER TIME OF CIRCUMCISION

To the Editor:—1. How long should we wait before catheterizing a new-born baby when it does not micturate from birth, and how many hours can we wait before repeating?

2. If the foreskin of a new-born baby is such that a circumcision is required, at what age is it advisable, in cases in which it does not obstruct micturition?

L. T. A. HOTTENDORF, M.D., Bloomington, Idaho.

ANSWER.—1. The first question calls attention to a bad practice which seems to be somewhat wide-spread, namely, catheterizing a new-born baby. It is unjustifiable, harmful and not sanctioned by the best authorities. Absence of micturition in the new-born is due to lack of urine in the bladder. The renal secretion is usually scanty for the first two days and often less than one ounce. The kidneys frequently contain infarcts of urates and uric acid. The proper management is to give water by the mouth or by enemas to supply a solvent and help to "wash out" the kidney. Warm baths may also be of advantage.

2. A large healthy child that is gaining in weight may be circumcised in the second week after the navel has healed. A puny baby should not be circumcised until it has begun to gain. It is generally possible to release the foreskin by the dilating and breaking of the adhesions to the glans. This operation may require more care for three or four days than a circumcision, but it has its advantages.

"THE WONDERS OF RECENT PATHOLOGIC RESEARCH"

To the Editor:—I have been asked to furnish material for a paper entitled "The Wonders of Recent Pathologic Research," to be read before the local branch of the Woman's Federation, and I herewith pass the request on to you.

FRED LEE MORSE, M.D., Lake Odessa, Mich.

ANSWER.—The following popular articles may be of service:

Big Battles Against Disease (The Conquest of Germs), *Outlook*, Dec. 24, 1910.
Mayo, Earl: Big Battles Against Disease (Advance in Surgery), *Outlook*, Jan. 28, 1911.
Williams, Henry Smith: The Struggle for Immunity, *Harper's Magazine*, December, 1911.
Baldwin, Francis Elbert: The Background of the Opium Conference at The Hague, *Rev. of Rev.*, February, 1912.
Kingsbury, John A.: No Tuberculosis in New York State in 1920, *Rev. of Rev.*, April, 1910.
Carrel, A.: Transplantation of Organs, THE JOURNAL, Nov. 25, 1905, p. 1645.
Carrel, A.: Permanent Life of Tissues Outside of Organism, *Jour. Exper. Med.*, May, 1912.
Carrel, A.: The Preservation of Tissues and Its Application in Surgery, THE JOURNAL, Aug. 17, 1912, p. 523.
Immunity Against Poisons, *Scientific American*, May 25, 1912.
Immunity and Its Mechanism: The Battle Between the White Blood-Corpuscles and Invading Bacteria, *Scientific American*, June 8, 1912.
Pearce, R. M.: Research in Medicine, *Popular Science*, August, 1912.
Gorgas, William C.: Sanitation of the Tropics, with Special Reference to Malaria and Yellow Fever, THE JOURNAL, April 3, 1909, p. 1075.
Gorgas, W. C.: Sanitation at Panama, THE JOURNAL, March 30, 1912, p. 907.
Gorgas, W. C.: Part Sanitation is Playing in the Construction of Panama Canal, THE JOURNAL, Aug. 31, 1909, p. 597.
Gorgas, W. C.: Conquest of the Tropics for the White Race, THE JOURNAL, June 19, 1909, p. 1967.
Ferrell, John A.: Hookworm Disease, pamphlet issued by the N. C. Board of Health.

TREATMENT OF TUBERCULOSIS BY WORK AND EXERCISE

To the Editor:—What articles covering work and exercise in the treatment of consumption have appeared recently? M. D. S.

ANSWER.—The following articles have reference to treatment of consumption by work and exercise:

Flinn, J. W.: Rest and Repair in Pulmonary Tuberculosis, THE JOURNAL, Aug. 16, 1913, p. 466.
Telcky, L.: Choice of Occupation with Regard to Tuberculosis, *Wien. klin. Wchnschr.*, March 13, 1913; abstr., THE JOURNAL, April 26, 1913, p. 1336.
Holcomb, S. R. C.: Graduated Labor in Pulmonary Tuberculosis, *Military Surgeon*, February, 1913; abstr., THE JOURNAL, Oct. 26, 1912, p. 1564.
Allan, J. W.: Graduated Labor at Bellefield Sanatorium, *Glasgow Med. Jour.*, January, 1911; abstr., THE JOURNAL, Feb. 4, 1911, p. 384.
Francine, A. P.: Rest, Exercise and Food in the Management of Tuberculosis, *New York Med. Jour.*, Dec. 31, 1910; abstr., in THE JOURNAL, Oct. 29, 1910, p. 1589.
Paterson, M.: Treatment of Pulmonary Tuberculosis by Graduated Rest and Exercise, *Practitioner*, January, 1913.
MacCorison, C. C., and Burns, N. B.: Method of Recording Exercise Data in Sanatorium for Consumptives, *Boston Med. and Surg. Jour.*, May 9, 1912.
Burns, N. B.: Respective Significance of Rest and Exercise in Treatment of Phthisis, *Boston Med. and Surg. Jour.*, May 9, 1912.
Robin, A.: How Tuberculosis is Cured by Work, *Therap. Gaz.*, December, 1911.
Fletcher, W.: The Need of Physical Exercise in the Treatment of Tuberculosis, *Wisconsin Med. Jour.*, June, 1910.

The Snare of the Loaded Rectum.—A loaded rectum is another source of difficulty. Some swelling may be felt behind the uterus and vagina, and we must beware of believing and especially of saying—that there is a tumor there until a finger has been introduced into the rectum. A patient's confidence in her medical attendant is shaken by the extrusion of her tumor into the bedpan.—Arthur E. Giles, in (London) *Clinical Journal*.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

HOSPITAL REFORM IN GREAT BRITAIN

Great Britain is at present years ahead of this country in some lines of constructive activity which can be regarded as socialistic or not, depending on the point of view. The national insurance act, providing state medical attendance for about fourteen million persons, has been commented on frequently in previous issues. This is regarded by some as plain socialism, by others rather as state activity for self-protection. That it has prepared the way for the consideration of other forms of state benefit is beyond question. In a recent issue of the *British Medical Journal* appears an article by the chairman of one of the principal divisions of the British Medical Association, advocating a voluntary medical service, which would be supported by the state and which would furnish professional services at a fixed price per week, as well as paying disability and old-age pensions. As a corollary of this proposition, the hospital situation in rural districts is also discussed. Starting out with the proverbs that "health is wealth" and that "prevention is better than cure," the writer concludes that it is to the public interest to secure the highest possible skill among the largest possible percentage of doctors, and that, as this is true, physicians should not only be assured the means and the possibilities of acquiring knowledge and skill through proper training and medical schools, but, after graduation, they should be in a position steadily to increase their knowledge and skill by access to hospitals in which proper facilities for treatment are available. Criticisms of the present situation are that the existing hospitals are becoming more and more centralized, that they are limited principally to the larger cities and that the number of physicians who can secure the necessary training and experience as members of the staff is limited. The result is that the practitioner who locates at a distance from a properly equipped hospital not only does not increase his knowledge and skill by experience, but does not even retain what he has, on account of lack of opportunity to use it. The result is that, with the exception of those men whose location or ability secures them appointments on the staff of some hospital, physicians soon become rusty in their knowledge and limited in their usefulness. The remedy for this situation would be the multiplication of small hospitals, in proportion to the density of population, erecting them in the densely populated outlying districts of cities, as well as in country communities, placing them in open, healthy places convenient to main lines of travel, allowing every physician to send patients to any available hospitals and to continue treating them while in the hospital, requiring every patient to pay for his care, and compensating every physician in proportion to his hospital attendance. The results which the writer anticipates from such a plan are less damage to patients on account of removal to distant hospitals, increasing ability and efficiency of physicians and increased benefit to the patients. The system, according to the writer in the *British Medical Journal*, would be self-supporting and possibly profit-producing, after deducting the initial expense of building and equipment, which could be obtained by government loans. The capital invested would be soon saved to the community by the improved healthfulness and the shortened periods of recovery in cases of sickness. A state-aided, voluntary medical service working through a system of centralized hospitals would, in the writer's opinion, "prove an incentive to the knowledge and practice of the rules of health which would be a benefit to the community. Hospital treatment would be extended to the middle classes, while hospitals could be used as centers for public lectures on hygiene, rearing of infants, use and abuse of alcohol, etc. Last but not least, the anomaly of the most skilled of the greatest profession being expected to give of their best gratuitously, while every other trade and profession are paid "according to their skill," would cease. Whether the results indicated would be as sweeping as this is open to argument. Whatever may be the social conditions in Great Britain, the public in the United States is probably not ready for a state-aided medical service now and will not be for many years, if ever. But the hospital situation is practically the same in both countries. In this country, as in England, there are too few hospitals. The hospitals in many cases are too highly centralized, they are too largely restricted to large cities, the distance which patients must be carried is, in many cases, too great and the number of physicians having access to these hospitals for the treatment of patients and for the acquirement of professional skill is too small. The development of small hospitals in the small towns and in the rural communities, and the substitution of a number of hospital units in various parts of the larger cities, in place of a single institution of enormous size and cost, are some of the most important and necessary of reforms.

CHECKING UP ON THE HEALTH DEPARTMENT

The disastrous flood in the early part of 1913 not only caused destruction of property in Dayton, Ohio, but also left the city in a bad sanitary condition. By prompt and energetic action, however, epidemics were prevented and the general health of the citizens was not seriously affected. In the course of the rehabilitation of the city, many reforms, governmental and otherwise, were instituted, one of them being the adoption of a modified commission form of government, the principle of which is that the direction of a city's affairs is a business proposition which demands the application of business principles by a business manager. A bureau of municipal research[1] was also established, and among its first problems was the promotion of the health of the city. In order to have a correct basis on which to work an expert from the School of Public Service of the New York Bureau of Municipal Research was employed to make a survey of public health with regard to the efficiency of the health service of the city. One of the most important conclusions of the report is—and well it applies to almost every city in the land—that the want of a better regulation of health and sanitation was not owing either to ignorance of conditions or to lack of efficiency on the part of the local board of health, but "largely and chiefly to the mistaken policy which leads to an insufficient appropriation for the needs of the department; to lack of cooperation by some departments of the city government, and largely to the apathy of the people in matters pertaining to public health." Beginning with headquarters, the report shows that the "health office is badly lighted, poorly arranged and inadequately equipped," and that, as a result, the efficiency of the department is diminished fully 25 per cent. Lack of full-time officers is also given as a cause of decreased effectiveness. Referring to the question of appropriations, it is said that during 1912 a sum a little in excess of twenty-one thousand dollars, or about thirteen cents per capita, was expended for health conservation, while the appropriation for such purposes in a city the size of Dayton should be at least eighty or eighty-five cents per capita. As a consequence of, or at least under this inadequate expenditure, three epidemics of contagious and preventable disease occurred in 1912 which, on account of closure of schools, financial loss on account of sickness and death, etc., cost the city, as estimated, approximately two hundred thousand dollars, or practically ten times the amount of the health appropriation. When a proposition such as this comes up to the new business manager of Dayton, if he applies even ordinary business principles, it should not be difficult to predict his recommendation. The report of the expert takes up all phases of the health service of Dayton and makes constructive suggestions in regard to its betterment. Conditions in Dayton are cited, not to show the deficiencies of its health department, which was no doubt better than those of many other cities, but to emphasize once more the apathy of the people and their representatives in local government in regard to health matters, and the ridiculously inadequate appropriations for the work of sanitation and disease prevention. No expenditure or investment could possibly bring larger or more satisfactory returns.

---

[1] Bull. Ohio State Board of Health, September, 1913.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; *Homeopathic*, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 3. Sec., Dr. S. L. Lee, Carson City.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. *Crosthwait, Suite 1003, Amicable Bldg., Waco.*

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico State Board of Health and Medical Examiners, reports the written examination, held at Santa Fe, July 14-15, 1913. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Four candidates were licensed on presentation of satisfactory credentials and one through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	93.7
Barnes Medical College, St. Louis	(1909)	82.5

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	*Year of Graduation*
University of Louisville	(1912)
Tulane University	(1897)
Baltimore Medical College	(1891)
Vanderbilt University	(1894)

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, St. Louis	(1909)	Oklahoma

South Dakota July Report

Dr. P. B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the oral and written examination held at Pierre, July 8-9, 1913. The number of subjects examined in was 13; total number of *questions asked. 100; percentage required to pass, 75.* The total number of candidates examined was 16, of whom 15 passed and 1 failed. *Three candidates* were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1913)	88, 91
College of Physicians and Surgeons, Chicago (1911) 84; (1912) 79, 89; (1913) 90, 90.		
Rush Medical College	(1909)	89
Chicago College of Medicine and Surgery	(1913)	91
University of Michigan, College of Medicine and Surgery (1912) 86.		
Barnes Medical School	(1904)	76
Beaumont Hospital Medical College	(1897)	84
Missouri Medical College	(1886)	85
University of Nebraska	(1898)	79
Temple University	(1910)	90

FAILED

College	Year Grad.	Per Cent.
American Medical College, St. Louis	(1912)	64

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Keokuk	(1876)	Nebraska
Kansas City Medical College	(1901)	Oklahoma
John A. Creighton Medical College	(1912)	Nebraska

Maryland June Report

Dr. J. McP. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination, held June 17-20, 1913. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 135, of whom 76 passed and 25 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University (1912) 78, 84;	(1913)	82
Maryland Medical College (1911) 77; (1912) 77, 78, 79.		
College of Physicians and Surgeons, Baltimore (1913) 75, 80, 83, 88.		
Baltimore Medical College (1912) 78; (1913) 82, 85.		
University of Maryland (1911) 78; (1912) 79, 79, 79; (1913) 75, 76, 76, 76, 78, 81, 82, 83, 83, 84, 84, 85, 85, 87, 88.		
Johns Hopkins University (1906) 80; (1911) 86; (1912) 86; (1913) 79, 81, 81, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 86, 86, 86, 87, 87 88 88 88, 88, 90. 90.		
University of Pennsylvania (1911) 88;	(1913)	90
Jefferson Medical College (1912) 86; (1913) 80, 85, 85.		
Woman's Medical College, Pennsylvania (1910) 75; (1912) 85; (1913) 84, 85.		
Medico-Chirurgical College of Philadelphia (1912) 80;	(1913)	82
Medical College of Virginia	(1913)	75
McGill University	(1908)	92
University of Berlin, Germany	(1905)	78
University of Vienna	(1906)	80

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore	(1913)	72
Johns Hopkins University	(1913)	69
Baltimore Medical College	(1913)	64
University of Maryland (1911) 60, 71; (1912) 74; (1913) 69, 73, 74.		
Maryland Medical College (1909) 67; (1912) 56, 59, 65, 67, 68, * *; (1913) 68.		
College of Physicians and Surgeons, Boston	(1911)	64
Ohio Eclectic Medical College	(1912)	64
Jefferson Medical College	(1902)	*
Temple University, Pennsylvania	(1913)	71
Meharry Medical College	(1913)	59, 67
Medical College of Virginia	(1913)	72

LICENSED THROUGH RECIPROCITY

College	Year. Grad.	Reciprocity with
Howard University, D. C.	(1904)	W. Virginia
Chicago Medical College	(1890)	Minnesota
Maryland Medical College	(1905)	Georgia
Johns Hopkins University (1906) North Carolina; (1910) Missouri; (1911) Ohio.		
University of Maryland	(1909)	N. Carolina
College of Physicians and Surgeons, Baltimore	(1910-2)	W. Virginia
University of Pennsylvania	(1888)	Delaware
Jefferson Medical College	(1898)	Georgia

* No grade given.

The following questions were asked:

ANATOMY

1. Describe upper extremity of humerus, including attachments of muscles. 2. Name cavities of the heart and describe the valves. 3. Name salivary glands and locate orifice of their ducts. 4. Give foramen of exit from cranium, distribution and function of the pneumogastric nerve. 5. Name muscles of the eyeball and eyelids, and give their nerve-supply. 6. Through what vessels does blood pass in going from the external saphenous vein to right index-finger? 7. Name muscles on back of leg. 8. Describe the pharynx. 9. Describe gross anatomy of the liver. 10. Describe the thyroid body.

CHEMISTRY

1. Distinguish between "chemical" and "physical" changes in matter and give an example of each. 2. (*a*) Define an acid. (*b*) Give formula of one inorganic acid and show how this formula fulfils the conditions stated in your definition. (*c*) Give the name and formula of one organic acid. 3. (*a*) Should a physician *order* iodid of potash and corrosive sublimate in the same solution, what chemical and physical changes would take place in the mixture? (*b*) Would the resulting products be harmful to the patient *and*, if so, which? 4. Complete the following equations: $MnO_2+H_2SO_4 =$; $2KI+FO_2=$; $3H_2O+P_2O_5=$; $C_2H_5OH+H_2SO_4=$. 5. Write the graphic formula of marsh gas *and* (*b*) illustrate by graphic formulae its relation to wood alcohol. 6. (*a*) What are carbohydrates? (*b*) Name three substances belonging to *this group*. 7. (*a*) Iodin—Give its (1) valence, (2) method of preparation, (3) *test for iodin.* (*b*) Give name and formula of one of its organic and one of its inorganic compounds. 8. How would *you know that* a given white powder was calomel and not ordinary bismuth? 9. On what chemical *fact* does Fehling's test for sugar depend? 10. (*a*) *Give the*

most important constituents of normal gastric juice. (b) What is the action of normal gastric juice on: (1) proteids, (2) fats, (3) carbohydrates in the ordinary course of digestion?

PHYSIOLOGY

1. Give reaction of the following and state cause of reaction: Gastric juice, blood, urine, and pancreatic juice. 2. Describe briefly the physical and morphologic changes of the leukocytes. 3. What are carbohydrates and what part do they play in the general metabolism? 4. Describe briefly the physiology of the clotting of blood. 5. Define anabolism, osmosis, dialysis and rigor mortis. 6. State some of the conditions which produce variations from the normal temperature of the body. 7. State briefly what is meant by the vasomotor nervous system. 8. Describe the fetal circulation. What changes in the circulation take place at birth? What is the physical condition of the child if such changes do not take place properly? 9. Describe the physiology of menstruation. 10. What is meant by secretions? What is the difference between external and internal secretions? Give examples of each.

PATHOLOGY

1. Describe *Trichina spiralis*, giving life cycle, and morbid anatomy of trichiniasis. 2. Mention two or more conditions that prevent the passage of urine from the male bladder, and describe the process which causes one of these conditions? 3. Mention six varieties of calculi and describe the formation and composition of one variety. 4. What are the signs of death? Sketch the method of doing a complete necropsy. 5. Give the pathologic changes occurring in acute bronchitis? 6. Mention the lesions of typhoid fever. What is a typhoid carrier and how recognized? How is antityphoid vaccine prepared 7. Describe the healing of an uninfected wound. 8. Give the characteristics of a malignant growth. Mention at least four varieties which affect the breast and describe one. 9. Discuss anaphylaxis. 10. Describe the morbid process occurring in a tuberculous hip which is untreated, resulting from bony ankylosis.

PRACTICE

1. Define: (a) Ulcerative stomatitis. What remedy is specific for this dis[illegible] pupil. In what disease does it occur? [illegible] d) Anuria. Hematuria. Polyuria. (c) [illegible] in which it occurs as a late complication. 2. Define: (a) Nephrolithiasis and cholelithiasis. (b) Landry's paralysis. (c) Name the various valvular diseases of the heart. (d) Enteroptosis. (e) Dysphagia. Name some diseases in which it occurs. 3. Diagnosis—Define: (a) Tonic and clonic spasms. (b) Hemoptysis and hematemesis. (c) Sibilant and sonorous râles. (d) What is tic douloureux and how would you treat it? 4. What are the physical signs of pulmonary solidification and pleuritic effusion 5. Differentiate: Follicular tonsillitis and diphtheria. 6. Name the day of eruption in small-pox, chicken-pox, measles and scarlet fever. 7. Give diagnosis of intestinal obstruction and name three types. 8. Treatment. Give treatment of nephritis and name both types. 9. Being called to a case of pulmonary tuberculosis in its early stages what symptoms would you find, and what measures would you employ? 10. Pellagra. What are its symptoms and how would you treat them?

THERAPEUTICS

1. Explain the action of diphtheria and tetanus antitoxin as prophylactic and curative agents. 2. Write a *prescription* in Latin, without abbreviation, containing three ingredients which you would use in the treatment of acute *pharyngitis*. *3. Write a prescription* in Latin, without abbreviation, containing four liquid ingredients; state conditions for which it is intended and give directions for its use. 4. Name three *official preparations* of ammonium and give their therapy. 5. Hyoscyamus: Its *active* principle, physiologic action and therapy. 6. Belladonna: Its active principle, physiologic action and therapy. 7. *Digitalis: Its* active principle, physiologic action and therapy. 8. Give an example of a prescription showing a chemical incompatibility and describe the incompatibility. 9. Give the *physiologic action* of nitroglycerin and indications for its use. 10. Name the chlorids of hydrargyrum, therapy, symptoms and treatment of poisons.

OBSTETRICS

1. Describe the changes that take place in the organs of the mother during *normal pregnancy.* 2. *Give the classification* of contracted pelvis. 3. Describe the sutures, fontanels and protuberances of the presenting fetal head. 4. What is kyphosis and its influence *on* labor? 5. Give the diagnosis of tubal pregnancy before rupture. 6. Mention the different *methods* of *dilatation* of the cervical canal for delivery of the fetus. 7. Give the indications for version. 8. What are the dangers in *forceps* delivery? 9. Describe the physiologic lochia. 10. Describe briefly the operation trachelorrhaphy.

SURGERY

1. Give symptoms and treatment of chronic purulent otitis media. 2. Name conditions which may cause inability to pass urine, with *symptoms of each. 3. Give symptoms,* [illegible] ent of Pott's disease in the dorsal region. 4. [illegible] treatment of acute glaucoma. 5. Give sym[illegible] of a fracture of a rib. What complications [illegible] symptoms, diagnosis and treatment of cholelithiasis. 7. Give symptoms and signs of thoracic *aneurysm.* 8. *Define* surgical shock; give symptoms, signs and treatment. 9. A *patient having received* a severe *blow* over left temporal region, is unconscious for a time, paralysis *coming* on late. Discuss the possibilities. 10. Give symptoms, diagnosis and treatment of carcinoma of the *rectum.*

MATERIA MEDICA

1. Bismuth, betanaphthol, camphor and aspirin. The official preparations and dose of each. 2. Give source of sugar of milk, hexamethylenamin, phenol, pepsin and glycerin. 3. Name the alkaloids of nux vomica. 4. *Belladonna.* The official preparations and doses. 5. Cocain, codein, colchicum, colocynth. *The official* preparations and doses. 6. Define extracts. Give five official extracts with average dose of each. 7. Name three *drugs* which may produce a rash and describe such rash. 8. Write a prescription for thirty-six pills, *for an adult,* containing iron, quinin, strychnin and arsenic. 9. Name three external and three internal antiseptics and give strength in which they are generally used. 10. What are *antitoxins?* Name three. Give average dose and how administered.

Book Notices

MARRIAGE AND GENETICS. Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M.D., F.C.S., Professor in the University of Cincinnati. Cloth. Price, $1. Pp. 183. Cincinnati: The Galton Press, 1913.

In spite of the enormous amount of material recently published on marriage, sex hygiene and kindred topics, this book has a definite place and mission, and is certain to attract the attention and careful study of all those sincerely interested in social betterment. Not only on account of the high professional standing and personal prominence of the writer, but also on account of the manner in which the subject is presented, Dr. Reed's book will be accepted by the medical profession as one of the best discussions of marriage and eugenics which the physician can place in the hands of his patients. Its objects, as set forth in the introduction, are to "overcome the ignorance which in too many instances keeps innocent victims from protecting themselves and their offspring from disease and degeneracy," "to avert many of those conditions that destroy the possible happiness of the marriage state, and convert the bridal chamber into the anteroom of the divorce court." The carrying out of this purpose has made it necessary for the author to consider the laws of human breeding and to explain them in terms comprehensible to the lay reader. This has been accomplished by the formulation of ten fundamental laws of race perpetuation, which the author designates as "the decalogue of human breeding." The discussion of these subjects comprises the first half of the book, which consists of an introduction, stating the problems involved in general terms, and a discussion of the general laws of genetics, in chapters on life, continuity of human life, sexual efficiency, character units, inheritance, heredity, the human norm, growth and reproduction, food and fecundity, and natural selection. The second division is given to a consideration of social diseases under the heading of "Race Poisons," while the third and last part of the book, designated as "Applied Eugenics," discusses the details of such physical examinations and conditions as are necessary to detect unfitness for marriage, also a summary of the various characteristics transmissible from parents to offspring, and the conditions under which such transmission occurs. In spite of the enormous amount of ground covered, the book is concise and compact. It is, therefore, well adapted for the general public, as it omits all discussion over controversial points. Specially praiseworthy is the entire absence of the sermonizing and moralizing that characterizes many popular books on similar subjects. The facts regarding heredity, eugenics and degeneracy are given in plain, simple language, perfectly comprehensible to any one of average intelligence. The book is a valuable contribution to the popular literature on the subject and cannot fail to be of enormous social service.

DISEASE OF THE EAR. By Philip D. Kerrison, M.D., Professor of Otology, New York Polyclinic Medical School and Hospital. Cloth. Price, $5. Pp. 588, with 333 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This book is an index of the manner in which the subject of otology has developed in recent years. It is filled with information presented in concise and direct form with no unnecessary padding. Each subject seems to be given adequate treatment. The anatomic and physiologic aspects of the aural and surrounding structures are clearly and beautifully described and illustrated by numerous splendid drawings which cleverly illustrate the points aimed at. Surgical procedures are equally well described, and in matters of diagnosis and treatment the author displays the ripe judgment of large experience. It is equally satisfactory in the manner in which the more common and more simple affections of the aural apparatus are described, and in the more technical matters pertaining to the detection of impairment of the sense of hearing and the function of equilibrium and the intricate operations on the mastoid and the middle and internal ear. Chapters are included on tuberculosis of the ear, auditory nerve lesions of syphilis, and those following the use of salvarsan, a number of which have been reported. Serum and vaccine therapy in the treatment of aural diseases are also covered briefly, as are aural disturbances due to dental lesions, deaf-mutism and the question of adenoids. In an appendix, aural disease in relation to life insurance, artificial aids to hearing, the manner of recording histories, and various formulas for sprays and other applications are found. Unnecessary mention is made of a number of proprietary preparations, some of which are decidedly out of place in a book that makes a pretence of being scientific.

Modern Progress and History. Addresses on Various Academic Occasions. By James J. Walsh, K.C.St.G., M.D., Ph.D., Dean and Professor of the History of Medicine at Fordham University School of Medicine. Cloth. Price, $2 net. Pp. 450. New York: Fordham University Press, 1912.

Physicians pay far too little attention to the history of their profession. The average physician knows little regarding medical knowledge, theories, or conditions of previous generations. Much of the inability of physicians to explain and counteract the fads and cults which are constantly springing up is due to their lack of knowledge of the rise and fall of many similar movements. A comprehensive review of the history of medicine with sketches of some of the great leaders and pioneers in scientific work should be one of the first things presented to the medical student.

Physicians of all ages and classes who are really interested in their profession will find many things to hold their attention in Dr. Walsh's book. It contains eleven addresses delivered on various occasions and all bearing on educational or scientific questions. The first chapter, "Prescriptions, Old and New," contains many interesting examples of old and curious prescriptions. The second chapter, on dentistry, shows the development of this art in early times and its progress to the present day. The chapter on "Professional Life and Community Interests" can be read with profit by every medical student. While every reader may not agree with Dr. Walsh in his general proposition that modern progress does not represent as great an advance over the accomplishments of previous generations as is generally supposed, no thoughtful reader can fail to find these essays both interesting and stimulating.

Therapeutics of the Gastro-Intestinal Tract. By Dr. Carle Wegele. Adapted and Edited with Additions on the Diagnosis of the Diseases of the Esophagus. By Maurice H. Gross, M.D., Attending Gastro-Enterologist to the Har Moriah Hospital, and I. W. Held, M.D., Attending Physician to the Har Moriah Hospital. Price, $3 net. Pp. 329, with 54 illustrations. New York: Rebman Company, 1913.

The editors have undertaken the task of producing an American edition of Wegele's book, because in their opinion it is an especially conscientious and thorough treatise on the subject. In addition to translating and arranging the original material, they have added points of diagnostic interest in connection with the various diseases discussed, chapters on the esophagus, Roentgen-ray diagnosis of the stomach and intestinal diseases, and on the basis of their own researches, a chapter on the comparatively new subject of the duodenal tube. In this complete form the book should be of great use to those engaged in general practice, in that it gives concisely the therapy of many conditions whose care is extremely difficult. The literature includes all material published up to the time of going to press.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in College of Physicians and Surgeons, Baltimore. Fourth Edition. Cloth. Price, $4 net. Pp. 857. Philadelphia: W. B. Saunders Company, 1913.

Since the last revision in 1909 so many changes in opinions on diet and so many new facts have been added to the subject that a revision of this volume has been thought necessary. New tables are added and many of the chapters are entirely rewritten. A section on "Mechanism of Digestion" is also included. The chapter dealing with infant feeding contains practically all that is new and accepted on this subject. The value of the book as a handbook for the practitioner on a difficult subject needs no comment.

Nierenphysiologie und funktionelle Nierendiagnostik im Dienste der Nierenchirurgie und der internen Klinik. Von Dr. Victor Blum, Privatdozenten für Urologie an der K. K. Universität Wien. Paper. Price, 4 marks. Pp. 121, with illustrations. Leipsic: Franz Deuticke, 1913.

The author has gathered the material on this subject up to the latter part of 1911. From a consideration of the various functional tests of the kidney, he concludes that modern scientific study of kidney lesions demands that functional tests be made constantly throughout the course of various kidney diseases. Apparently much material has been brought forth on this topic since the treatise was written. In view of this fact, it can form nothing more than a reference book for those interested in the subject.

Practical Bacteriology, Blood Work and Animal Parasitology. Including Bacteriologic Keys. By E. R. Stitt, A.B., Ph.G., M.D., Medical Inspector, U. S. Navy. Third Edition. Cloth. Price, $1.50 net. Pp. 408, with 110 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This manual continues to improve with each edition. Much has been added to the chapters on bacteriology and the work on protozoa has been completely revised. The chapter on immunity contains good discussions concerning the preparation of vaccines, agglutination tests, Wassermann reactions and anaphylaxis. A new chapter has been added on disinfectants and insecticides which gives particular application to methods of carrying out these important health procedures.

A Reference Handbook of Gynecology for Nurses. By Catherine MacFarlane, M.D., Gynecologist to the Woman's Hospital of Philadelphia. Second Edition. Leather. Price, $1.25 net. Pp. 156, with illustrations. Philadelphia: W. B. Saunders Company, 1913.

A large amount of information is contained in this little book. Especial attention is given to the preparation for operations and the assistance which a nurse should give. As its name denotes it is a convenient handbook for ready reference.

Medicolegal

Liability of Parents for Medical Services Rendered to Adult Children

(Crowell vs. Donoho (Mo.), 153 S. W. R. 1082)

The Kansas City Court of Appeals affirms a judgment for the defendant in this suit on an alleged contract of employment to recover the reasonable value of services rendered by the plaintiff, as a physician and surgeon, to an adult daughter of the defendant. The court says that at the time the services were performed the defendant was a widow, one member of whose family was an unmarried daughter over 18 years of age, who fell ill. The plaintiff was called into the case in consultation, and recalled to perform an operation for appendicitis. Afterward a second operation was performed, and still later a third. The defendant paid the plaintiff's bills for the consultation and first operation, but he was not paid for the last two operations, and this suit was brought for the recovery of the reasonable value of his services in performing them. The defendant testified, and the court found, that the payments made by the defendant for the first two visits, though paid out of the defendant's funds, were made for the patient at her request, and were charged against her inheritance, the defendant being administratrix of her husband's (the patient's father's) estate. The plaintiff's theory of an implied contract of the defendant to become liable for his services must rest on the facts that the patient was a member of the defendant's family and that the plaintiff's compensation for a part of the services rendered was paid by the defendant apparently out of her own funds, though, in reality, out of funds belonging to the patient.

The defendant was under no legal obligation to provide her adult daughter with the services of physicians, and had she called the plaintiff into the case that fact, of itself, would not have raised an implied promise on her part to become responsible for the plaintiff's employment. The rule is well settled that a mere request from a father to a physician to attend a child of full age, and for whom he is not bound to provide, and though sick at the father's house, raises no implied promise on his part to pay for such medical services. Still less, says the court in *Crane vs. Baudouine*, 55 N. Y. 256, may a promise be implied when there has been no special request by the parent to the physician, and no more than an acquiescence in his calls.

It was the duty of the plaintiff to know or to learn the true legal status of the patient, and what were her true legal relations to the defendant. If the court should hold that a parent could not be present in the sick-room of his adult child and exhibit usual parental interest and anxiety, without becoming liable to an attending physician called in by another at the patient's request, it would do violence to a wise and humane rule of universal recognition that has for its object the proper care of the sick and helpless.

The only fact remaining on which an implied promise of the defendant might be founded with any show of reason was that of the payment on behalf of the patient of the plaintiff's first two bills. It is said in *Morrell vs. Lawrence*, 203 Mo. 373, that a contract should be implied when the circumstances or conditions may be such as to lead the physician to believe, and to charge the father with knowledge that the physician does believe, that the father is undertaking to pay for the services to be rendered. In that case the father called the physician under circumstances, as pointed out in the opinion, clearly indicative of a purpose and assurance on his part that he would pay for the services; but here the plaintiff was called under circumstances that pointed to the patient as his only employer. The patient was too ill to attend to business affairs, and naturally would be expected to select her mother as her agent. Had the defendant paid the plaintiff in money, he would not have been justified in believing that she was using her own money and intended to be regarded as his employer, or as acting in any other capacity than her daughter's agent. Certainly the mere fact that for convenience she gave him her own bank checks was no indication of a purpose to vary the ordinary legal relationships obtaining in such instances. It is a very common thing for an agent to make disbursements for his principal's account in such manner, and the plaintiff was not entitled to draw any special conclusions from the method of payment employed.

The plaintiff appeared to have taken too much for granted. His cause was predicated on presumptions he had no legal right to indulge. The court does not say that the parent of an adult child may not become bound to pay for medical services rendered the child on an implied promise, but it does hold that such promise must rest on facts and circumstances that would be incompatible with any other inference than that the parent intended to be regarded by the physician as his employer. There were no circumstances in this case indicative of such intention, and the court concludes that the trial judge committed no error in rendering judgment for the defendant.

Evidence of Fall Being Primary Cause of Operation—Information Obtained by Subsequent Examination of Removed Parts Privileged

(*Jones vs. City of Caldwell (Idaho), 130 Pac. R. 995*)

The Supreme Court of Idaho holds that when a woman walking on the sidewalk of a city fell through a hole in the walk, and it was thereafter found necessary for her to undergo a surgical operation, and there was doubt and conflict in the evidence as to whether the operation was caused primarily by the fall or by a previously existing diseased and affected condition of the parts operated on, and expert testimony introduced was indefinite and uncertain as to the primary cause which rendered the operation necessary, the fact that the operation was considered necessary by the attending physicians soon after the accident occurred, and that the operation was actually performed, were circumstances which the jury had a right to consider in concluding that the fall was the primary cause of the operation and of the consequent damages sustained.

When the attending physician deems a surgical operation necessary on his patient, and another physician or surgeon is called to assist in the performance of the operation, and actually performs the operation or assists therein, and subsequently, on a trial which brings in issue the facts and circumstances which led up to and rendered necessary the operation, any information acquired by the attending physicians at the operation or subsequently acquired by examination of the parts removed by the operation is privileged information under the provisions of Section 5958 of the Revised Codes, *and cannot* be given in evidence without the consent of the patient, Subdivision 4 of Section 5958 providing that "A physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable him *to prescribe or act for the patient*." The fact that certain information was gathered from examination and inspection of the injured or diseased parts removed by the operation a considerable time after the operation had been performed and the physician had acted and prescribed for the patient, does not change the privileged character of the information and permit the physician to testify concerning the same.

In this case the city contended that the operation which resulted in the removal of the fallopian tube had been performed, the tube had been removed, and that it was no longer necessary to make an examination of the removed portion, and that the information acquired from the examination was not necessary to enable the witness to prescribe or act for the patient. Literally and technically speaking, this might be true; but such a construction of the statute would rob it of its true spirit and the purpose and intent thereof. Had the physician not been called on to perform this service in his professional character, he would never have been able to acquire the information about which the city sought to have him testify. He acquired it as a physician and surgeon and in no other capacity; and he acquired it as physician and surgeon for the plaintiff, and by reason of his employment in his professional capacity to serve the plaintiff.

Liability for Negligence in the Administration of an Anesthetic—Competent Evidence and Burden of Proof

(*Spain vs. Burch (Mo.), 154 S. W. R. 172*)

The Springfield Court of Appeals reverses a judgment rendered for the plaintiff in this suit for damages for the death of his wife, caused, as was alleged, by the malpractice of the defendant, as a physician, in administering to her an anesthetic. The court does this, remanding the case for a new trial, because there was not, in the record as presented, sufficient evidence to carry the case to the jury on the ground of negligence in not making a proper examination of the physical condition of the patient to ascertain whether or not her physical condition was such as to make it safe and proper to administer the anesthetic to her; but the court is not prepared to say that there was not sufficient evidence to take the case to the jury on the ground of negligence in not using due and ordinary care in administering the anesthetic, and in watching and caring for the patient while administering it, and while she was under its influence.

The court says that it recognizes the rule that it is not sufficient that a physician possess ordinary skill, and that he use proper and approved medicines and appliances in treating the patient, but also that in treating a particular case he must in that case use such reasonable skill and diligence in applying or administering the medicine and means used. The question to be determined was whether or not the defendant did, in this particular case, use ordinary skill and diligence in administering the anesthetic to the deceased.

Nitrous oxid was the anesthetic administered, through the Teters apparatus, in an examination for hemorrhoids. The examination was made with the assistance of another physician, called in for that purpose, and a woman office assistant. It occupied no more than from three to five minutes.

The evidence of a large number of dentists and physicians, familiar with and skilled in administering this particular anesthetic, was to the effect that if a person is in apparent good health that no examination whatever is usual or necessary; that the danger from the use of this anesthetic is almost a negligible quantity, so far as the physical condition of the patient is concerned. This, however, would not prevent the case going to the jury, provided there was any substantial evidence offered by the plaintiff that ordinary skill and diligence demanded a more careful examination, or one nearer the time of the operation, than that made by the defendant the previous afternoon.

When physicians and dentists are alike used as experts on the question of the proper use of this anesthetic, and it is shown that dentists use it more often than physicians, and are often more proficient and skilled in its use than an ordinary practitioner of medicine, the usual and customary methods of using it by dentists, skilled in that respect, is a legitimate source of inquiry, and such evidence should not be excluded. The skill and proficiency by which a physician administering an anesthetic is to be judged is not to be measured by the usual and ordinary skill possessed by other physicians only, but extends to that possessed by other persons, whose occupation and study give them an equal or better knowledge of the right methods of its use than is possessed by a general practitioner of medicine.

While the fact in this case was that death occurred during the time of administering the anesthetic to this patient, yet that fact alone would not support a verdict for the plaintiff. There must be a causal connection amounting to negligence between the accident and injury. The burden was not on the defendant to show the cause of the accident. The burden was on the plaintiff to prove the negligence affirmatively.

Nor would the fact that the jury had a right to disbelieve the testimony of the defendant, as to his having made, on the previous afternoon, a careful examination of the organic functions of the deceased, help the plaintiff on this point. It is true, as the plaintiff contended, that when an issue of fact is controverted, and oral evidence must be relied on to show that fact, the jury has a right to find against the oral testimony, although it is not contradicted. But this doctrine has not been, and should not be, carried to the extent that, when the burden is on the plaintiff to show the failure to do any act, and the defendant's evidence that he did do it is uncontradicted, then the jury may not only disbelieve his evidence, but may take such disbelief as supplying the lack of affirmative evidence required of the plaintiff.

Autopsies and Public Health.—Closely connected with the problem of correct vital statistics is the question of medical competency. Many death certificates do not give the true cause of death because of the carelessness, neglect or intent of the physician; many, however, and these are numerous, are faulty because of the ignorance of the physician as to the real cause of death. Definite proof in many instances can be furnished only by autopsies. This brings us to a subject in connection with which it is entirely within the facts to say that the advancement of medical science and the promotion of public health are greatly hampered in the United States by the groundless though understandable prejudice of the general public against the extension of the privileges of hospitals in the matter of performing autopsies. This prejudice arises largely from ignorance of the importance of post-mortem examination and from popular confusion of autopsies with anatomic dissections. Unfortunately, there is a continuous effort on the part of zealous but misguided individuals and organizations to increase this prejudice by misrepresentation of the facts. The great value of autopsies, not only to the medical profession but also to the members of the general public whom that profession serves, is beyond question. If we wish to add to our store of medical knowledge, if we wish to turn out good physicians, if we are to have reliable mortality statistics there must be more post-mortem examinations in the hospitals.—Corwin and Mayo, in *The Outlook.*

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

STATE MEDICAL SOCIETY OF WISCONSIN

Sixty-Seventh Annual Meeting, held at Milwaukee, Oct. 1-3, 1913

The President, Dr. A. J. Patek, Milwaukee, in the Chair

Educational Reform in Medicine

Dr. A. J. Patek, Milwaukee: A wave of educational reform in medicine has swept over the country, reducing the number of medical institutions from 166 in 1907 to 110 in 1913, as the first step in that direction. I recommend the appointment of a committee to investigate the evil of fee-splitting in Wisconsin, and report at the next annual meeting; also the appointment of a committee of five for the study of the cancer problem in Wisconsin, with full scope to make the investigation as broad as it may wish, the expense to be borne by the society. The passage of the workmen's compensation act in the state will bring the physicians into closer union with industrial enterprises, and will, to a degree at least, eliminate the ambulance chaser.

Consideration of the subject of eugenics has evolved a state law compelling a medical attest of the health of one of the contracting parties, forbids consanguineous marriages, bars from marriage the epileptics, insane and those having transmissible diseases, and provides for sterilization of habitual criminals, insane, feeble-minded and epileptics in public houses and asylums, all subject to reasonable restrictions.

Intraspinous Medication in Paresis and Tabes

Dr. W. F. Lorenz, Mendota, Wis.: Intraspinous medication is a simple procedure. The Swift-Ellis method of using blood-serum has been irritating, and caused alarming symptoms. The direct injection of a dilute solution of neosalvarsan in doses of 0.0006 gm. in the male, and 0.0003 gm. in the female, caused no untoward symptoms. The direct use of neosalvarsan has apparently as much effect as the Swift-Ellis blood-serum. Intraspinous medication is a valuable adjunct in the treatment of early paresis.

DISCUSSION

Dr. L. M. Warfield, Milwaukee: In a series of experiments at the Milwaukee County Hospital we did not use the Swift-Ellis method, thinking it would be more advisable to put the salvarsan directly into the spinal canal in dilute solutions; experiments were made to find the correct dosage, in which the salvarsan proved a tremendous irritant to the spinal meninges, and we have been injecting 0.0004 mg. in 10 c.c. of fluid, and the patients have shown a marked improvement. The most valuable features of the examination of the spinal fluid are, first, the cell count; second, the globulin content.

Dr. W. F. Becker, Milwaukee: The treatment by salvarsan does not yield so good results in the parasyphilitic cases, tabes and paresis as it does in direct cerebral syphilis or postsyphilis; but the returns are coming in very fast, and everything seems favorable to the establishment of a satisfactory method of treatment.

Anesthesia

Dr. W. E. Bannon, La Crosse, Wis.: Anesthesia as generally administered has not been accorded sufficient care, and is often grossly abused by incompetent anesthetists; gas, oxygen and novocain anesthesia in the hands of experienced and competent anesthetists, and with a skilled operator, is a safe and satisfactory anesthetic for most cases of major operations; the successful use of nitrous oxid, oxygen and novocain requires, on the part of the surgeon, greater skill in operating and more careful manipulation of the tissues.

and definite knowledge of the nerve supply to regions to be blocked with the novocain, and cooperation between the anesthetist and operator. Preliminary small doses of morphin are of more benefit than harm; much lighter ether anesthesia than is usually given is sufficient for most surgical procedures.

DR. J. L. YATES, Milwaukee: I made a series of experiments on rabbits with morphin, morphin and scopolamin, nitrous oxid and oxygen, ether, chloroform and cobra venom. The observations forced the conclusion that there is no such thing as a safe anesthetic, and with it the realization that so long as poisons have to be given, the least amount of the least noxious should be administered—nitrous oxid, expertly given, often with a little ether vapor, and always mixed with sufficient oxygen to prevent cyanosis, or ether, is safest in the hands of an untrained anesthetist.

The Local Reaction Following Intradermal Injections of Tuberculin as a Guide to Tuberculin Therapy

DR. O. E. LADEMANN, Milwaukee: The administration of tuberculin consists in the application of the intracutaneous tests as defined by Mantoux as a guide to dosage. A local skin reaction consisting of redness and tenderness, measuring from 4 to 6 cm., appearing within twenty-four, forty-eight or seventy-two hours at the site of the injection, is a dose which apparently gives a pronounced local reaction in addition to stimulating the defensive powers and yet shows no evidence of a constitutional disturbance.

DISCUSSION

DR. C. H. STODDARD, Milwaukee: The cases which at the present time offer the greatest chances for control from the use of tuberculin are the surgical cases, the laryngeal cases, and those cases in which cavities are not as yet formed, and tubercle bacilli are not being thrown off. There is a growing skepticism in regard to the benefits of tuberculin treatment. I am willing to abandon it if something better is brought forward.

Osteitis Fibrosa Cystica of the Lower Jaw

DR. J. F. SMITH, Wausau, Wis.: It is difficult to differentiate these cases from sarcoma. The Roentgen ray is a valuable diagnostic agent. Amputation, resection and other operations formerly resorted to are entirely unnecessary, when we recognize the benign character of the growth. It is a mistake to inject bismuth paste or any foreign material into the cavities; a small muscle flap should be transplanted into the cavity, and the wound closed primarily.

DISCUSSION

DR. C. A. EVANS, Milwaukee: It is important to diagnose this disease, the cases being rare; a bone cyst may be looked on as a benign tumor, as far as treatment is concerned. An exploratory incision should be made in every case before a radical operation. The Roentgen ray is an invaluable help in the proper diagnosis.

The Modern Treatment of Syphilis

DR. L. SCHILLER, Milwaukee: The complement-fixation reaction is necessary in order positively to determine anything concerning the disease after the active symptoms have disappeared, and the physician is now able to determine the presence or absence of syphilis, regardless of the statements of the patient. The next advance in the treatment is the discovery of salvarsan as an efficient remedy, notwithstanding its rather stormy progress.

DR. C. F. HOOVER, Cleveland: In spite of the long clinical career that mercury has had, it is only since the Wassermann reaction, the discovery of the spirochete and the production of salvarsan that we actually know how to use mercury. The only real field for salvarsan is in those patients who cannot tolerate an adequate amount of mercury.

DR. O. FOERSTER, Milwaukee: The vital point in the present-day treatment is the possibility of sterilization of the central nervous system, and the prevention of later occurrence of tabes and paresis. One-half of the patients treated three years ago with salvarsan show absolutely normal conditions. The effect of salvarsan is more definite and more lasting than that of mercury.

DR. C. A. BAER, Milwaukee: The changes in the cerebrospinal fluid appear very early in the disease, and that is the time to institute a very strong, heavy attack.

Extrasaccular or Sliding Hernia

DR. V. F. MARSHALL, Appleton, Wis.: Extrasaccular or sliding hernia of the large intestine or bladder has a peritoneal covering which is but partial; the condition is more common than was at first believed; it owes its development to an embryologic origin; relapses are frequent and its cure may tax the ingenuity of the surgeon to his utmost. A patient with hernia of sixteen years' duration left the hospital sixteen days after the operation, having made an uneventful recovery.

DISCUSSION

DR. EDWARD QUICK, Milwaukee: In the operation we should be careful not to injure the blood-supply of the intestine which is contained in the hernia. Sometimes it is very difficult to isolate the contents of the hernia and the sac from the structures of the cord, and it has been found necessary by some operators to sacrifice the testicle in completing the operation.

The Serum Diagnosis of Pregnancy

DR. C. M. ECHOLS, Milwaukee: Fifty-seven tests were made according to Abderhalden's method. The test will probably never be simple enough for the general practitioner to carry out, but there is reason to believe that when done in properly equipped laboratories, Abderhalden's method will in the course of a year or so take its place with the Wassermann and Widal reactions in point of reliability.

DISCUSSION

DR. L. A. WARFIELD, Milwaukee: I have tried out the test in a limited number of cases at the Milwaukee County Hospital; but recently gave it up and confined myself to experiments on the detection of what are supposed to be amino-acids and products of proteolytic digestion in the urine. Can we diagnose the functional insufficiency of the kidney by means of this dialyzing test? If we can find a test which is simple, and which will enable us to prognosticate the onset of toxemia of pregnancy, we shall have advanced a tremendous step in the protection of the pregnant woman.

DR. DANIEL HOPKINSON, Milwaukee: The test requires the greatest of care, and if it were possible to substitute some form of complement fixation, it would be more reliable.

The Effect of Athletic Sports on the Heart

DR. C. R. BARDEEN, Madison, Wis.: The increasing amount of cardiovascular disease noted in this country by life insurance companies and others makes it important for the physician to make himself acquainted with the chief causes responsible for these conditions so that he can protect his patients. Overexertion in competitive sports, especially in schoolboys, is one factor. From 5 to 10 per cent. of freshmen entering the state university have cardiac hypertrophy with dilatation attributable to athletic sports. While in most cases there is good compensation, in many there are mitral murmurs and a myocardial irritability which not only keeps these students out of college sports but to some extent hampers their scholastic work in college. Practically all college students taking part in the major sports have hypertrophied hearts. While in many cases compensation is good, in a large number there is a myocardiac irritability sometimes accompanied by mitral murmurs which indicate somewhat serious lesions. In the past two years there have in addition been four cases of acute cardiac dilatation among the relatively few members of teams in the major sports to one case among the far greater number of students not members of teams. In the latter case the dilatation occurred while the student was running in the gymnasium.

Problems in Bone Surgery

DR. J. M. HITZROT, New York: In regeneration of bone my experience both clinical and experimental shows that in the healing of the bone after fracture, the periosteum and the endosteum are the chief factors in the process of repair, and that the cortical bone has a relatively slight function, if any, in the formation of the new bone tissue. The best graft is one covered by periosteum and with endosteum on its inner surface. There is a wide variation in the results obtained by the free transplantation of the periosteum, which depends on a number of factors which influence bone formation in the periosteum, such as age, the presence of blood and fibrin, which can readily be demonstrated, and certain other as yet undetermined factors which seemingly cause a failure of bone production by the periosteum under apparently identical conditions. The endosteum is as important a factor in the regeneration of the transplanted bone as it is in the healing process in fracture.

(To be continued)

DELAWARE STATE MEDICAL SOCIETY

Annual Meeting, held October 13-14, 1913

The President, Dr. L. A. H. Bishop, Dover, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. William B. Orr, Lewes; vice-presidents, Drs. T. P. Davies, Farnhurst, and William Marshall, Milford; secretary, Dr. G. W. K. Forrest, Wilmington; treasurer, Dr. S. C. Rumford; delegate to the American Medical Association, Dr. H. W. Briggs, Wilmington.

Next meeting to be held Oct. 13-14, 1914, in Wilmington.

Disease of the Gall-Bladder and Bile-Ducts

Dr. L. A. H. Bishop, Dover: Suppurative cholangeitis is due primarily to an obstruction of the common bile duct due to a stone, with resulting dilatation of the gall-bladder and bile-ducts. The infective agent is usually the *Bacillus coli communis*.

Surgical Treatment of Tuberculous and Other Infected Joints

Dr. J. J. Jones, Wilmington: Tuberculous joints are encountered most commonly among children from 3 to 5 years of age. Forty per cent. of cases involve the hip and 10 per cent. the knee. The other joints most frequently affected are the ankle, shoulder, elbow and wrist. As a general rule the tuberculous condition is found in the short bones. It is often thought that when we find a tuberculous joint or bone we should remove the affected portion, but with a little care a great deal can be done to save these parts. My practice is to inject an iodin solution at various points around the infected joint, and, if it is necessary to cut away any tissue, to fill up the opening with powdered boric acid and tincture of iodin, about 30 minims of the tincture to the ounce of powdered boric acid. I open up every knee-joint in which fluid is found. Any general practitioner can do this. After the fluid has been removed the main thing is to prevent its return. The patient should be kept at rest and given general treatment. The joint is kept in a wet bichlorid dressing and bandaged tightly for about four days in order to prevent the return of fluid. Two hypodermic injections of morphin are usually necessary on account of pain.

DISCUSSION

Dr. George I. McKelway, Dover: I think it is bad teaching that in every such case of fluid in the knee-joint the joint should be opened. We all see cases which recover promptly with no subsequent trouble, simply by absolute rest in the plaster-of-Paris bandage for one to two weeks. I think it is a very great mistake to say that any general practitioner can safely open the knee-joint. The men who do most of this sort of surgery caution that the most absolute and scrupulous asepsis is necessary in operating on the joints or bones. Everything should be done with instruments and parts not even touched with the gloved finger because of the exceeding liability to infection.

Dr. D. W. Lewis, Middletown: I take exception to Dr. Jones' advice to open all joints in which there is fluid. I consider it bad practice always to do that and also for those to do it who are not accustomed to it.

Dr. J. W. Steele, Dover: I do not agree with Dr. Jones' practice of opening up the joint. In a recent case with effusion into the knee-joint I gave the patient half a dozen cantharides blisters about the size of a nickel and told him to place one of these blisters on the knee every third night, treating it until the entire knee was circled. By the time this was done under absolute rest the fluid had almost completely absorbed.

Dr. A. Robin, Wilmington: Three years ago I saw Dr. Jones of Liverpool operate on the knee-joint. He takes extreme precautions in preparing for the operation and never cuts without extraordinary care. In tuberculous troubles it has been found that tuberculin in larger doses than usually employed brings wonderful results. In bone diseases no diagnosis should be made unless a careful roentgenographic study has been made.

Dr. J. J. Jones, Wilmington: In answer to criticisms about opening the knee-joint, I was speaking of tuberculous and infected joints. When you have an infected joint with a large quantity of fluid in it, it should be removed, for it will destroy the synovial membrane and cartilage and eventually may destroy the bone. No one would dare open the knee-joint without having everything thoroughly sterile.

Serum Therapy

Dr. William H. Kraemer, Wilmington: In one case, in a man 46 years of age, in which cystoscopic together with microscopic examination showed tuberculous cystitis, I used tuberculin. The tuberculin injections were kept up for eight months, at the end of which time the symptom of pain in the bladder and frequency of urination had been greatly relieved.

DISCUSSION

Dr. William H. Kraemer, Wilmington: The reason I have been so determined to have the normal temperature before giving tuberculin is that, as I understand it, the idea of giving tuberculin is to establish a reaction of the body against the infection, and, if the patient is throwing out of his own accord sufficient toxic substances to produce a high temperature in the body, I feel that giving him tuberculin would only add to the reaction and that it would not bring about any favorable results.

Dr. G. I. McKelway, Dover: Tuberculin does good in tuberculous gland infections. The reason is that they are simply tuberculous infections; they are not mixed infections. Tuberculin does no good in advanced cases of tuberculosis because the infection is a mixed infection. You have not only a tuberculous condition to deal with, but what it is fair to call abscess in the lung from pyogenic organisms on which tuberculin has no effect and on which nothing will have any practical effect. The secret of using tuberculin is to use too little rather than too much. The usual mistake is that men are impatient for results and think that if a little does good a little more will do better.

The Roentgen Ray as an Aid to the General Practitioner

Dr. Henry A. Cleaver, Wilmington: The Roentgen ray is in no sense a panacea for disease either as to diagnosis or as to treatment. It is one of the most powerful aids, but requires specialized technic and training. It will never displace the clinical methods of examination. The diagnostic features are in the foreground and the element of treatment is much in the experimental stage. The future of the Roentgen ray lies largely in respect to treatment. For the patient there is always danger unless the man who is manipulating the machine knows it and knows it thoroughly. The man who has experience is the best judge when to stop. There is entirely too much promiscuous roentgenoscopy, especially with the apparatus which are designed to give impressions or results. The machines oscillate to two extremes which either will not do the work or else will burn the patient.

(To be continued)

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

The President, Dr. Henry K. Pancoast, Philadelphia, in the Chair

Officers Elected

The following officers were elected for the ensuing year: President, Dr. Sidney Lange, Cincinnati; vice-presidents, Dr. D. D. Talley, Richmond, Va., and Albert Soiland, Los Angeles, Cal.; secretary, Dr. W. F. Manges, Philadelphia; treasurer, Dr. Leonard Reu, Buffalo; executive committee: Dr. Alfred L. Gray, Richmond, Va., chairman; Dr. George C. Johnston, Pittsburgh, and Dr. Roland Hammond, Providence, R. I.

The next annual meeting will be held in Cleveland, Ohio.

Adoption of a Standard Nomenclature for Roentgen Ray Work

On the recommendation of the Committee on Nomenclature, the society adopted the following terms for use in connection with all work in which the Roentgen ray is the agent employed:

Roentgen: To be pronounced rent-gèn.

Roentgen ray: A ray discovered and described by Wilhelm Konrad Roentgen.

Roentgenology: The study and practice of the Roentgen ray as applied to medical science.

Roentgenologist: One skilled in roentgenology.

Roentgenogram: The shadow picture produced by the Roentgen ray on a sensitized plate or film.

Roentgenograph (verb): To make a roentgenogram.

Roentgenoscope: An apparatus for examination with the fluorescent screen excited by the Roentgen ray.

Roentgenoscopy: Examination by means of the roentgenoscope.

Roentgenography: The art of making roentgenograms.

Roentgenize: To apply the Roentgen ray.

Roentgenization: Application of the Roentgen ray.

Roentgenism: Untoward effect of the Roentgen ray.

Roentgen diagnosis; Roentgen therapy; Roentgen dermatitis: These terms are self-explanatory.

The secretary was instructed to send a list of these terms and definitions to medical journals, medical publishers and lexicographers.

Journal of the Society

The Publication Committee announced that hereafter the society would publish a monthly journal, to be known as the American Journal of Roentgenology, to contain not only original articles, but abstracts of current literature in English and foreign languages dealing with roentgenologic subjects. The editor is Dr. Preston M. Hickey, 32 Adams Avenue, West, Detroit, Michigan.

The Value of Roentgenography in the Prognosis of Bone Lesions

Dr. Roland Hammond, Providence, R. I.: In bone *tuberculosis*, improvement is noted in the general condition of the patient before any change is apparent in the bone. This improvement is shown roentgenographically by the deposit of lime salts in the diseased area and in the adjacent bones. In unfavorable cases the bone undergoes a marked atrophy until its shadow is often hardly to be distinguished from the surrounding soft parts. In these two classes of cases the Roentgen examination confirms the clinical findings. There are other cases, however, in which roentgenography is an invaluable guide as to the future conduct of the case. The clinical symptoms may be unfavorable, but roentgenographic examination shows that the bone is not sufficiently healthy to permit of function in the joint. In one of the cases cited the patient's condition was excellent, and the employment of apparatus was about to be omitted. A roentgenogram was made as a precaution, and showed marked disease with no signs of healing. Soon after this the patient became worse and died in three months.

The Pituitary in Its Relation to Epilepsy

Dr. G. C. Johnston, Pittsburgh: I examined the pituitary region in every case of epilepsy obtainable, especially those in which no symptoms of pressure in the region of the pituitary (as evidenced by changes in the eye-grounds and visual fields) were present. I was very soon compelled to divide the cases into primary cerebropathies, pituitary tumors and epilepsy. In the majority of cases, little if any information was obtained by roentgenography of the first class, but there remained a second class of patients, who with an uneventful history, no injury, the ordinary children's diseases, previous good health, somewhere between the ages of 15 to 35, began to have attacks of petit mal, gradually increasing in severity and frequency.

As our investigations began to include this type of cases, we noticed decided departures from our conception of the normal in the topography of the sella turcica. These changes were but rarely found in the types of chronic epileptics, but were found with a regularity that gave rise to intense interest in the second class of cases above described, namely, those who with previous good histories, between the ages of 15 and 35, began to develop epilepsy. The changes consisted for the most part in an overgrowth of the anterior and posterior clinoidal processes, which in addition to an increase in area and length are slowly folded over and down on the pituitary gland, enclosing it within a bony basket. In addition to this process which is evidently one requiring a considerable length of time for its accomplishment, there is very often noticeable a decided difference in the size of the pituitary fossa and therefore of the gland itself. The fossa is thus largely or completely roofed over in some cases, the anterior and posterior clinoidal processes not only meet but overlap. The *frequency with* which this condition has been found in this class of cases is quite striking and suggests an etiologic relationship.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany Medical Annals

October, XXXIV, No. 10, pp. 573-636

1 Rôle of Insects in Transmission of Disease. C. K. Winne, Albany.
2 Some Aspects in Relation to the Chronic Gonorrheic, from Standpoint of Surgery and Eugenics. J. N. Vander Veer, Albany.

American Journal of Diseases of Children, Chicago

October, VI, No. 4, pp. 225-288

3 Cell Content of Milk. D. M. Lewis, New Haven, Conn.
4 *Anatomy and Physiology of Infant Stomach Based on Serial Roentgenograms. G. R. Pisek and L. T. LeWald, New York.
5 Urinary Lithiasis in Infancy. A. N. Collins, Duluth, Minn.
6 *Gastric Secretion of Infants at Birth. A. F. Hess, New York.

4. **Anatomy and Physiology of Infant Stomach.**—As a result of their investigations the authors conclude that there is no definite *normal* type of stomach in the infant. It is horizontal rather than vertical in position when compared with the adult type, and follows certain rather definite forms. They distinguish (1) the ovoid; (2) the tobacco pouch; (3) the pear-shaped stomach with base above and to the left. The shape of the stomach, it is said, does not even depend directly on the amount or character of the food ingested, but rather on the quantity of gas *which it* contains or acquires. Furthermore, its limits are greater than we were accustomed to believe, extending to the liver on the right and at times filling the entire *transverse* space from one abdominal wall to the other.

Of particular interest from the standpoint of diagnosis is the position of the pylorus. In the majority of cases this is found comparatively high and behind the pyloric third; at times its position cannot be determined even though we clearly see that the food and bismuth has passed out of the viscus.

This is especially true in the tobacco pouch form, in which the pylorus is forced posteriorly. The authors observed a change in form from the tobacco pouch to the bagpipe variety after the intestines have been emptied. The Rieder type was observed only once, occurring in a six-months-old infant. It appeared first as the bagpipe form, changed to a Rieder and then to a retort form.

The question of contained gas, or introduced gas, is an interesting one. In some cases the gas seems to act as a buffer, preventing the overdistention of the stomach with food. As a rule, the broader or more protuberant the abdomen of the infant, the greater the amount of gas the stomach contains. One of the most noteworthy observations made related to the rapid passage of food out of the pylorus; in a number of cases bismuth was seen in the duodenum one minute after the food had been introduced into the stomach by gavage, the average time being five minutes; in one case of the tobacco pouch, or retort form, the action was not unlike that of a siphon; after the greater part had passed through the pylorus the emptying action became slower. Except in the instances in which semisolid food (farina and bismuth) or cream were fed, the viscus tended to empty itself with unsuspected remarkable rapidity.

The authors question the advice of those who recommend placing all infants on four-hour feeding intervals, since a large number of stomachs practically empty themselves within an hour. In abnormal cases, as in infants having chronic disturbances of nutrition, the stomach began to empty itself very rapidly, and the emptying time was even shorter. Pisek and LeWald also attempted to corroborate the suggestive experiments of Cowie and Lyon on the pyloric opening and closing reflex. It was impossible to record or obtain roentgenograms of the action of the pylorus itself, because the pylorus and the first part of the duodenum are rarely visible, but the retarding action, for example, of alkalies, which they record, was well shown. They were able to verify the work of Cannon, Grutzer and Sick, that foods in the stomach do not tend to intermix.

6. **Gastric Secretion of Infants at Birth.**—According to Hess, newborn infants regularly secrete a considerable amount of hydrochloric acid before they are given any food. Among fifty-two infants varying in age from ½ hour to 18 hours, only one did not have hydrochloric acid in the stomach; in all but one instance free acid was obtained. The hydrochloric acid varies greatly in amount. Exceptionally it was found almost lacking on repeated tests (congenital hypochlorhydria or hyposecretion), or very profuse (congenital hyperchlorhydria or hypersecretion). In almost all cases acid was obtained by Hess throughout prolonged tests, in spite of the fact that food was not given to stimulate secretion. In one instance 17 c.c. of highly acid juice was aspirated in one hour and fifty minutes. Rennin, pepsin and lipase were also obtained in the (unfed) new-born. Hess claims that prevailing physiologic views cannot account for the gastric secretion immediately after birth. It is not the result of mechanical stimulation by means of the catheter, as the juice was obtained immediately on the introduction of the tube, without an intervening latent period. It may be prenatal in origin. Nor is it clear what stimulates the continued secretion which was obtained for hours. Experiments showed that the saliva is not the exciting agent; the effect of sucking could not be determined. Comparative tests of the same infants at birth and later, during the first week of life, showed that the stimulus to gastric secretion may be greater in the new-born infant which has not been fed. This chlorhydria of the new-born, Hess states, is not usually associated with increased tonicity of the pyloric sphincter, as the duodenal catheter can readily be passed through the pylorus. Even when 0.4 per cent. hydrochloric acid is instilled into the gastric cavity the catheter can be readily passed into the duodenum. However, the high acidity may at times be related to the pylorospasm or to duodenal ulcer met with in infancy.

Although gastric secretion is so marked in the newborn, duodenal and pancreatic secretion is very scanty. Nor can this secretion be readily stimulated by allowing hydrochloric acid to enter the duodenum. Evidently the mechanism of pancreatic secretion is not as easily activated in the newborn as in later infancy.

Archives of Internal Medicine, Chicago

October, XII, No. 4, pp. 357-484

7 *Atypical Typhoid Infection. W. T. Cummins and P. K. Brown, San Francisco.
8 *Absorption of Protein without Digestion. E. V. Van Alstyne, New York.
9 Cholesterol and Cholesterol-Ester Content of Blood in Xanthoma Tuberosum Multiplex. J. Rosenbloom, Pittsburgh.
10 Relation of Fatigue to Paralysis Localization in Plumbism. R. R. Mellon, Ann Arbor.
11 Reinspiration of Expired Air. T. R. Crowder, Chicago.
12 Functional Tests of Kidney in Uremia. N. B. Foster, New York.
13 *Blood-Pressure Studies in Tuberculosis at High Altitude: Report of Six Hundred Cases. L. S. Peters and E. S. Bullock, Silver City, N. M.
14 *"Auricular Flutter," with Report of Two Cases. F. T. Fulton, Providence, R. I.

7. **Typhoid Infection.**—The following represents a summary made by Cummins and Brown of cases illustrating atypical conditions and complications. Among 149 patients treated since September, 1909, there have been 11 deaths—7.3 per cent.; with meningitis, chronic nephritis and purulent appendicitis, each 1 case; intestinal hemorrhage, 2 cases; perforation and possibly embolism, each 3 cases. There were 3 paratyphoid cases. Relapses developed in 9 cases, of which one appeared as late as four weeks after leaving the hospital. The longest febrile period of relapse was thirty days and the shortest, nine days. One patient developed a second attack of typhoid fever after a six-year interval. The earliest intestinal hemorrhage occurred on the third day. Two cases were fatal and of 11 others, 4 were severe and 7 were mild. Pleurisy with effusion (organism?), meningitis and pneumonia (*B. typhosus*), neuritis in leg, neuritis in shoulder, periostitis of tenth rib and perforating duodenal ulcer were each noted in one case. The ulcer patient was operated on on the twenty-ninth day, but the lesion was not determined as typhoidal. Two patients presented an initial appendicitis, the operation being followed by the development of typhoid fever. Another patient during the course of typhoid infection developed the symptoms of perforation; operation was performed and a ruptured appendix was disclosed. Phlebitis of the leg developed in 7 cases, and of these there were 4 in the second week, 2 in the fifth week and 1 in the third week after discharge. Thrombosis or embolism was suspected in the lungs in 4 cases and in the mesenteric veins in 3 cases. These occurred from the sixth to the thirty-fifth days, and were not severe, except in 2 cases of pulmonary embolism. One patient died promptly, and the other, occurring on the thirtieth day, resulted in gangrene from which the patient was convalescent on the one hundred and ninety-first day. Chills and fever were noted in 13 cases of which phlebitis of the leg was the etiologic factor in 3. Malaria may have been a factor in another case. Chills occurred during the first week in 4 cases, second week in 2 cases, third week in 4 cases, fourth week in 2 cases and sixth week in 1 case.

8. **Absorption of Protein Without Digestion.**—Van Alstyne's experiments demonstrate that protein may be absorbed unaltered through the intact epithelium of the gastro-intestinal tract. Conditions which interfere with normal digestive function, such as ligaturing a portion of the intestine, or the whole stomach, or the isolation of a portion of the intestine as a Thiry-Vella fistula, markedly increase the amount of protein absorbed. The amount of protein absorbed without digestion under physiological conditions is too small to be of any significance as a factor in nutrition. Edestin and egg albumin when injected intravenously into a dog do not remain in the circulation in a condition to sensitize guinea-pigs for a long period; in our experiment for three days. On the other hand, horse serum may be detected in the dog's circulation for a period of at least forty-nine days. The absorption in the duodenum differs from that in other portions of the intestine in that the ligation of the duodenum does not facilitate absorption of unaltered protein.

13. **Blood-Pressure in Tuberculosis at High Altitude.**—From a study of six hundred cases Peters and Bullock draw the following conclusions: The blood-pressure is increased at elevations of 6.000 feet. The blood-pressure of both normal individuals and consumptives is higher at 6,000 feet than at sea level. The pressure tends to increase up to certain limits with continued residence. From a prognostic standpoint the blood-pressure findings are of great value in tuberculosis. There is no relation between the degree of involvement and blood-pressure, but there is a constant relation between the degree of toxemia and blood-pressure.

14. **Auricular Flutter.**—A man of 48 suffering from progressive chronic nephritis with paroxysmal dyspnea and considerable edema, suddenly developed an irregular heart action after nearly three months in the hospital. This lasted for a month, when the rhythm suddenly became normal. There were no noticeable symptoms with the onset or end of the attack but the edema was considerably more marked while the condition persisted. Cheyne-Stokes breathing was present at the time of the return to the normal rhythm. Digitalis in moderate doses of the tincture was being administered during most of the time of the irregularity. The tracings indicate that the irregularity was due to a very rapidly beating auricle, associated with irregular ventricular responses.

A man aged 54, with gradually increasing dyspnea and edema for a year, came under observation with chronic nephritis and an enlarged heart in stage of decompensation, and a pulse of 136 to 138 uninfluenced by posture or exercise. Auricular waves were present in the venous tracing at the rate of 272 per minute, indicating a 2:1 block. With rest in bed improvement was steady but the pulse was not slowed until after eight days of digitalis, when it became irregular, the latter being due to an increased grade of heart-block. Six weeks later the auricle was found to be in fibrillation.

The two cases reported by Fulton present certain points of similarity. Both patients were near the end of the fifth decade of life. In each case there was some arterial hypertension, some chronic disease of the kidneys, some cardiac hypertrophy with cardiac insufficiency associated with dyspnea and edema. In one instance the onset of the abnormal rhythm and the reestablishment of the normal rhythm occurred while the patient was under treatment in the hospital. Tracings were not taken immediately before the rhythm returned to normal, so whether it passed through the stage of fibrillation is uncertain. The duration of the abnormal rhythm was about a month. In the other case, the auricle was in flutter when the patient came under observation. It passed into fibrillation about six weeks later and has remained in that state.

Boston Medical and Surgical Journal

October 16, CLXIX, No. 16, pp. 557-591

15 *Relationship between Gynecologic and Neurologic Diseases. W. P. Graves, Boston.
16 Pellagra in Massachusetts. J. B. MacDonald, Hathorne, Mass.
17 *Surgery of Biliary Passages from Jan. 1, 1901, to Jan. 1, 1911, at Massachusetts General Hospital. W. Whittemore, Boston.
18 Pathologic Lesion of Whooping Cough. F. B. Mallory, Brookline, Mass.

15. **Gynecologic and Neurologic Diseases.**—Graves emphasizes that there exists no mysterious or peculiar nerve connection between the female genital organs and the central nervous system, and that disturbances in the former cause manifestations in the latter by the irritation of pain and discomfort.

17. **Surgery of Biliary Passages.**—Whittemore has traced 467 patients. Two hundred and sixty-two had a cholecystostomy performed for cholelithiasis; 139 have remained perfectly well; 56 have had a recurrence of symptoms; in twenty cases the symptoms have recurred once or twice and the patient has remained well since. Forty-seven are dead. Of these cases traced, 21 per cent. had recurrences. Fifty-nine had a cholecystostomy for cholecystitis; 29 have remained perfectly well; 16 have had recurrences. One patient, who is now well, had several recurrences, and 13 are dead, showing 27 per cent. of recurrences in the fifty-nine cases traced. Eighty-nine patients had a cholecystectomy for cholelithiasis; 63 have remained well, 5 have recurred, one recurred once or twice, is now well, and 20 are now dead. In the 89 cases traced, 5.6 per cent. show a recurrence. Twenty-five patients had a cholecystectomy for cholecystitis. Nineteen have remained well, in two the symptoms recurred, and four are now dead; 8 per cent. of recurrences in the twenty-five cases traced. Of 14 patients with cholecystostomy and choledochotomy, 9 have remained well, 2 recurred and 3 are dead. Seven had a cholecystectomy and choledochotomy. Two have remained well. 5 are dead. Five cases of choledochotomy traced, 2 remained well, 1 recurred, and 2 are dead. Two patients having a cholecystostomy and duodenotomy have been traced, 1 has remained well, 1 is now dead. One case has been traced that had a cholecystectomy and duodenotomy, and this patient is dead. Two patients that had a cholecystenterostomy have been traced; 1 has remained well, 1 died. Out of a total of 467 patients traced, having had these various operations, 246 have remained well, with no recurrences; 82 have recurred and are apparently no better following the operation. This shows a percentage of 17 per cent. of recurrences. Twenty-two patients have had one or two attacks of colic and have remained well since then; 97 are now dead.

Twenty-five patients having had a cholecystostomy for cholelithiasis at the first operation have had secondary operations. Eight had a cholecystostomy for cholelithiasis done. Of these eight, 1 has had a further recurrence of symptoms, 4 have remained well, 1 died at home and 2 have not been traced. One patient had a cholecystostomy for cholelithiasis and choledochotomy at the second operation. This patient died following the operation. Seven patients have had a cholecystectomy at the second operation; 3 have remained well, 1 died following the operation, 1 died at home, 2 have not been traced. Six patients had a choledochotomy at the second operation; 4 have remained well, the other two not traced. One patient had a choledochotomy and a duodenotomy; this patient died following the operation. Two patients had adhesions broken up at the second operation. Both these cases have had recurrence of symptoms. Ten patients having a cholecystostomy for cholecystitis at the first operation have had a second operation. Two of these had a cholecystostomy for cholelithiasis at the second operation. One has remained well, 1 was not traced. One patient had a cholecystostomy for cholecystitis and a choledochotomy at the second operation; this patient not traced. Two patients had a cholecystectomy at the second operation; 1 remained well, 1 died following the operation. One patient had a choledochotomy at the second operation, and this patient has remained well. Two patients had a cholecystenterostomy at the second operation. One died following the operation; the other was not traced. Two patients had adhesions broken up at the second operation; 1 died following the operation, 1 not traced. Only one patient returned for a second operation who had a cholecystectomy for stone, and no patient returned who had a cholecystectomy done for cholecystitis. The patient that returned for a second operation had a choledochotomy done and has remained well since.

At the present time 97 patients who were operated on are dead. Thirty-three have died at home since leaving the hospital and the other 64 died following the operation. Twenty of these died from peritonitis, 10 from hemorrhage, 12 from shock, 6 from pneumonia, 6 from septicemia, 3 from kidneys ceasing to functionate, and 2 from subdiaphragmatic abscess. In five cases Whittemore was unable to determine any cause for death from reading the records. Of the 33 that died at home, 8 died with further symptoms of disease of the bile passages, 1 from abscess of the liver, which was found at autopsy, and 1 from cancer of liver and gall-bladder, also found at autopsy. Two died with recurrence of the old symptoms, 4 died following a secondary operation which was performed outside the hospital. The others died from pneumonia, tuberculosis, apoplexy, nephritis and following childbirth, and in 10 cases Whittemore was unable to find out the cause of death.

Bulletin of American Academy of Medicine, Easton, Pa.

October, XIV, No. 5, pp. 329-382

19. Illumination from Standpoint of Medical Sociology. P. W. Cobb, Cleveland.
20 Present-Day Aims and Methods of Studying Offender. W. Healy, Chicago.
21 Physician in Service of Criminology. R. H. Gault, Evanston, Ill.
22 Influence of Parental Diseases, Habits and Heredity on Juvenile Crime. H. Sneve, St. Paul, Minn.

California State Journal of Medicine, San Francisco

October, XI, No. 10, pp. 387-430

23 Dermatologic Case Reports. H. E. Alderson, San Francisco.
24 Effect of Competitive Athletics on Scholarship. H. D. Power, San Francisco.
25 Sclero-Corneal Trephining for Glaucoma. K. Pischel, San Francisco.
26 Use of Serums in Medical Hemorrhage. F. F. Gundrum, Sacramento.
27 Treatment of Urinary Tuberculosis, Tuberculin and Nephrectomy. Legueu and Chevassu.
28 Four Cases of Varying Types of Anemia. E. H. Crabtree, San Diego.
29 Social Evil. Petersen, Oakland.
30 Case of Hydrophobia in Which Child Bit Her Father. R. E. Allen and F. L. Horne, Newcastle.
31 Hema-Uro-Chrome—New Laboratory Test for Cancer and Sarcoma; from Urine. T. G. Davis, Los Angeles.
32 Physicians' Aspect of Sunday Closing of Pharmacies. A. S. Musante, San Francisco.
33 Atrophy of Prostate with Citation of Cases. H. Somers, San Francisco.
34 Undescended Testicle: Report of Two Cases. R. L. Rigdon, San Francisco.
35 *Intensive Strychnin Treatment of Trifacial Neuralgia. T. J. Orbison, Los Angeles.
36 Pellagra. A. Davidson, Los Angeles.
37 Traumatic Hysteria. J. T. Fisher, Los Angeles.

35. Intensive Strychnin in Trifacial Neuralgia.—Orbison's paper contains the clinical records of five cases of trifacial neuralgia (one case being multiple neuritis plus trifacial neuralgia), in which the treatment consisted of strychnin exhibited in large or massive doses. All of these cases contain a record of infection. This seems to Orbison to be the important indication for the exhibition of strychnin. In contrast to these, and for the purpose of calling attention to the fact that strychnin is not held to be a specific in every painful condition of trifacial distribution, Orbison cites five cases as examples of other and separate types of trifacial nerve pain in which rational therapeutics seemed to indicate different and differing methods of treatment, and in which the results have been likewise happy. Of the latter five, one was of hyperemic headache secondary to ovarian dyscrasia and cured by appropriate surgical measures and organotherapy; the second was a typical indurative headache that was speedily cured by the application of correct massage and moist heat to the indurations, together with internal administration of salophen and the iodids; the third was a combination of migrain with psychasthenia that was cured by the "training camp" method; the fourth, an incipient arteriosclerosis and fatigue neurosis, in which rest, hydrotherapy and thyroid extract were the curative measures; the fifth is a typical migrain associated with an unsuspected syphilis in which salvarsan is being exhibited because the presence of syphilis was demonstrated by a positive Wassermann of the spinal fluid. This case is still under observation. The strychnin treatment was given by mouth or hypodermically in 1/40 to 1/30 grain doses hourly for four hours morning and evening.

Cleveland Medical Journal

September, XII, No. 9, pp. 581-646

38 Typhoid in Cleveland in 1912. W. P. Ellis and R. G. Perkins, Cleveland.
39 Value of Roentgenograms in Diagnosis of Mastoiditis. J. M. Ingersoll, Cleveland.
40 *Causes of Continued Feve [illegible] Phillips, Cleveland.
41 Treatment of Recurrent [illegible] of Urinary Bladder with High Frequency or Oudin Current: Report of Case. W. E. Lower, Cleveland.
42 Cell Count in Spinal Fluid in Syphilitic Disease of Central Nervous System. O. P. Bigelow, Cleveland.

40. Causes of Continued Fever in Children.—The most common causes of continued fever in childhood are classified by Phillips as follows: 1. General infectious diseases such as typhoid, malaria, tuberculosis, influenza, septicemia syphilis. 2. Infections of the nose with its accessory sinuses, the ear and tonsils. This would include nasopharyngitis, infections of the antrum of Highmore, the ethmoidal and sphenoidal and frontal sinuses, otitis media with or without mastoiditis, and chronic tonsillitis. 3. Oral infections, particularly pyorrhea alveolaris. 4. Glandular inflammations, such as cervical adenitis or inflammatory conditions of the mediastinum and retroperitoneal glands, tuberculous peritonitis. 5. Diseases of the lungs and pleura, especially empyema bronchiectasis and abscess of the lung. 6. Chronic endocarditis and pericarditis with effusion. 7. Chronic appendicitis, constipation, colitis, starvation. 8. Infections of the urinary tract and vagina, pyelitis, nephritis, cystitis, gonorrheal vaginitis. 9. Diseases of the bones and joints. 10. Anemic conditions—pernicious anemia, Hodgkins' disease, leukemia, infantile scurvy. 11. Heat congestion due to insufficient radiation as seen in premature infants. 12. Chronic diseases of the brain and meninges—brain abscess, meningitis.

Georgia Medical Association Journal, Augusta

October, III, No. 6, pp. 181-214

43 Raynaud's Disease: Three Cases in Colored Race. L. Lee, Savannah.
44 Most Prevalent Intestinal Parasites Found in Georgia. A. G. Fort, Atlanta.
45 *Treatment of Lobar Pneumonia. J. W. Palmer, Ailey.
46 Syphilis from Standpoint of Physician. C. Swanson, Atlanta.

45. Abstracted in The Journal, May 31, 1731.

Illinois Medical Journal, Chicago

October, XXIV, No. 4, pp. 201-260

47 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis: Report of Twelve Cases. E. A. Gray, Chicago.
48 Diagnosis of Incipient Phthisis—Points Demanding Emphasis. B. G. R. Williams, Paris, Ill.
49 Early Identification of Pulmonary Tuberculosis. S. M. Miller, Peoria.
50 Tuberculosis of Kidney. R. E. Barrows, Cairo.
51 *Antityphoid Vaccination. G. V. Rukke, St. Louis.
52 Degeneration Common to Alcoholism and Inebriety. T. D. Crothers, Hartford, Conn.

47. Artificial Pneumothorax in Lung Tuberculosis.—Gray is of the opinion that artificial pneumothorax offers much in selected cases and that no progressive case should be given up without at least considering this operation. He thinks it is better to sacrifice a partially destroyed lung than to await its almost certain destruction, because it is possible to save a fair percentage of otherwise hopeless cases.

51. Antityphoid Vaccination.—At Jefferson Barracks, a recruit depot, Rukke says they have completed 11,007 cases of prophylactic administrations of typhoid vaccine. This means 33,021 injections. Of these cases, eighty-seven were admitted to hospital as having a reaction sufficiently severe to excuse them from work. As all recruits are vaccinated for small-pox at the time of enlistment, a large number of the admissions were suffering both from vaccinia and typhoid prophylactic. Again, as prevention of epidemics is an important part of the work, infectious diseases are imported continuously. A great number of these eighty-seven admissions were admitted on account of the temperature rise on suspicion of measles and other infectious diseases. Rukke believes it to be a conservative estimate that 50 per cent. of the admissions which were diagnosed as reaction following typhoid, would not have been admitted if the patient had not had vaccinia, or had not been taken in on account of the suspicion of measles or other infectious disease.

Rukke and his colleagues have seen no serious result in any of the 33,021 doses, and so far he has heard of only one, a case of neuritis in an officer, probably due to accidentally striking a nerve with the needle. Occasionally a man the day after the prophylactic becomes weak and faint while at drill and has to fall out, but usually in a few hours is able to go on with his work, not necessitating admission to hospital or any treatment. Children bear the prophylactic well. They have administered it to children as young as 3 years. They encourage all families on the post to have their children protected, and, to a great extent, they avail themselves of the opportunity. Children do not react so severely as adults. Usually the child is cautioned not to go out in the sun, otherwise it continues its play as if nothing had happened. The dose for a child is in proportion to its weight, the basis being a man of 150 pounds. Better a little more than less the exact proportion. As the child is immunized in proportion to its weight, and its weight increases rapidly, it is advisable to repeat the immunization oftener than in adults. The immunization appears to last at least two years, probably more.

Iowa State Medical Society Journal, Clinton

October, III, No. 4, pp. 221-278

53 Recent Advance in Knowledge of Pathology and Physiology of Ductless Glands. J. Sailer, Philadelphia.
54 Visceral Syphilis. W. L. Bierring, Des Moines.
55 Significance of Symptoms of Ametropia. H. B. Gratiot, Dubuque.

Journal of Cutaneous Diseases, New York

October, XXXI, No. 10, pp. 697-798

56 *Research Studies in Psoriasis: Preliminary Report. J. F. Schamberg, J. A. Kolmer, A. I. Ringer and G. W. Raiziss, Philadelphia.
57 Angioma Serpignosum (Infective Angioma of Hutchinson), with Report of Very Extensive Case. F. Wise, New York.
58 Leukocytes in Syphilis. H. H. Hazen, Washington, D. C.

56. **Research Studies in Psoriasis.**—Nine of forty-eight cases of psoriasis. 18.7 per cent. studied by the authors, yielded positive Wassermann reactions. using an alcoholic extract of luetic liver as antigen. With antigens of cholesterinized alcoholic extracts of human and beef heart, over 28 per cent. of twenty-two cases reacted positively. From a clinical study of the patients whose serums were studied, the positive tests cannot all be attributed to syphilis. although this might be true of a few of them; on the other hand, some significance must be attached to them, which future research alone can reveal. Using for antigens aqueous and alcoholic extracts of psoriasis scales and of a large number of cultures of organisms isolated from lesions, complement fixation was not found to occur with ten serums from active cases of psoriasis. These result would indicate that either the true antigen was not present in the extracts of scales and cultures used. or that the psoriasis antibody, if it exists, was not present in the serums in sufficient amount to inactivate complement with the extracts used in this study. Sixteen different organisms were isolated from fifty-seven cultures from twenty-four cases of psoriasis. No organism was found which could be regarded as bearing an etiologic relationship to the disease.

An unidentified diplococcus "X" was found in five psoriatic lesions and in one blood-culture and is deserving of further study. The use of anaerobic methods and special culture media, composed of the scales and secretions of psoriasis, did not show the presence of any special parasite. Numerous growths of scales in moist chambers showed the presence of diplococci, but no unusual organism or fungus. Investigation with the ultramicroscope discovered the presence of a motile bacillary body in seventeen out of nineteen cases of psoriasis. In eighteen other dermatoses these were found in three instances. These bodies are being further studied. Cultures and microscopic examinations of fluid secured by blister over psoriasis lesions, yielded indifferent and inconclusive results. Inoculation experiments on monkeys, including the implantation of buttons of psoriasis skin, scales, serum and defibrinated blood, were negative in one to six months after inoculation.

Kentucky Medical Journal, Bowling Green

October 1, XI, No. 20, pp. 813-888

59 Progress of State Medicine during Past and Recent Years. W. O. Roberts, Louisville.
60 Prevention in Medicine. O. West, Nashville, Tenn.
61 Conservation of Our Greatest Natural Resource. T. A. Frazer, Marion.
62 Achievements of Surgery. W. E. Senour, Bellevue.

Medical Record, New York

October, LXXXIV, No. 16, pp. 691-736

63 *Cure Through Genito-Urinary Surgery of Arthritis Deformans and Allied Varieties of Chronic Rheumatism. E. Fuller, New York.
64 Scope of Roentgenographic Methods, from Clinical Viewpoint, with Some Illustrative Cases. L. A. Wing, New York.
65 Syringomyelia; with Pathologic Findings. E. P. Bernstein and S. Horwitt, New York.
66 *Hitherto Undescribed Form of Polycythemia and Its Possible Relation to Duodenal Ulcer, Chronic Pancreatitis and Disturbance of Internal Secretions (Epinephrin). G. A. Friedman, New York.
67 Medical School Inspection and General Practitioner. M. M. Vinton, Brightwaters, N. Y.
68 Wassermann Reaction among Negro Insane of Alabama. R. R. Ivey, Tuscaloosa, Ala.

63. **Cure of Arthritis Deformans.**—On the basis that the presence of a septic focus in the seminal vesicles produces an arthritis, Fuller has performed seminal vesiculotomy 346 times with good results. Whereas in acute cases a cure of rheumatic complications following operation is rapid, it is natural in connection with chronic ones that the end result should be slower. In both phases of the disease, the operation, by draining the septic focus, puts an end to systemic toxemia. In the chronic cases, the toxemia may produce certain secondary lesions or results, which remain after the sepsis has disappeared, and it is not until these secondary lesions have vanished that a cure is usually reckoned. In Fuller's first series of thirty-five cases results were not as uniformly good as those attending later operations, for the reason that septic foci in these early cases were not treated surgically as radically as in the later operations. This was observed chiefly in connection with chronic cases which call especially for radical surgery.

66. **Polycythemia and Possible Relation to Duodenal Ulcer, Etc.**—The material studied by Friedman consists of twenty-five patients, twenty-three males and two females. The ages ranged from 19 to 57 years. All of the patients complained of the usual symptoms of chronic indigestion and of attacks of pain. The paroxysmal pain dated back mostly for years, and in a large number constant pain was also complained of. Many complained of night pain; some of hunger pain, others of both. A large number of them were users of bicarbonate of soda, which remedy they took at night on account of pain or on retiring in order to avoid night pain. Jaundice could not be elicited from a single history. Objectively there could be demonstrated in all the cases tenderness of different intensity to right of the epigastrium, in the continuation of right parasternal line somewhat above the navel; in but a few instances tenderness was found also somewhat to left of navel, and in one patient there was also tenderness in the appendicular region. In none of the patients was either liver border palpable. or spleen enlarged. or gall-bladder palpable. There were no tender spots characteristic for gall-stone disease or for gastric ulcer. Hyperacidity was noted in all, except for one case of hypoacidity and for another of heterochylia. The presence of occult blood could be demonstrated with the guaiac test only in a small number of cases, though with benzidin more frequently. A complete analysis of the feces of three patients showed pancreatic insufficiency. One of these cases came to autopsy and was proved to be chronic interstitial pancreatitis. Urine was negative, except for a large sediment of phosphates in some and transient glycosuria in two.

Modern Hospital, St. Louis

October, I, No. 2, pp. 69-142

69 New Johns Hopkins Feature Intended for Treatment and Scientific Study of Obscure Mental Cases—Methods to be Employed. A. Meyer, Baltimore.
70 Disinfection as Part of Hospital Administration. D. L. Richardson, Providence, R. I.
71 Some Special Features of Barnes Hospital, St. Louis. F. T. Murphy, St. Louis.
72 Great Need of American Hospitals—More Autopsies. T. C. Janeway, New York.
73 Boston New Children's Hospital Has Novel Features.
74 Is Pavilion or Sky-Scraper Hospital Best? S. W. Lambert, New York.
75 Proposed Inspection and Standardization of Hospitals. J. A. Hornsby, Chicago.
76 Out-Patient Workshops—New Hospital Department. H. J. Hall, Marblehead, Mass.
77 Poetry and Prose in Hospital. J. W. Fowler, Louisville, Ky.

New York Medical Journal

October 18, XCVIII, No. 16, pp. 745-796

78 Clinical Forms Presented by Nervous Syphilis. F. X. Dercum, Philadelphia.
79 Seven Cases of Syphilis Apparently Cured with One Injection of Salvarsan. A. L. Wolbarst, New York.
80 New and Improved Duodenal Instruments and Technic of Speedy Intubation of Normal Duodenum. I. O. Palefski, New York.
81 *Teeth and Their Relation to Eye. A. M. MacWhinnie, Seattle, Wash.
82 Pyelitis in Adult. C. J. Bartlett, New Haven, Conn.
83 Mentally Defective Immigrant. B. Glueck, Ellis Island, N. Y.
84 General Paralysis in Negro. F. M. Barnes, St. Louis.

85 Case of Retropharyngeal Abscess in Adult. C. M. Mann, New York.
86 New Method of Diagnosticating Masturbation in Girls. B. Kaufman, Marysville, Cal.

81. Relation of Teeth and Eyes.—MacWhinnie cites two cases to show that there is a very intimate relation between the teeth and the eyes. He insists that roentgenoscopy be made in all obscure eye troubles. In one case an abscess at the root of the left cuspid caused a very annoying eye trouble. In the second case there was an abscess at the root of the first molar which caused the visual disturbance.

New York State Journal of Medicine, New York

October, XIII, No. 10, pp. 511-560

87 Cancer of Uterus—Importance of Early Diagnosis. L. Broun, New York.
88 Etiology and Morbid Anatomy of Duodenal Ulcer. M. Clinton, Buffalo.
89 Diagnosis and Prognosis of Duodenal Ulcer. J. T. Pilcher, Brooklyn.
90 Complications of Duodenal Ulcer. J. B. Harvie, Troy.
91 Medical Treatment of Duodenal Ulcer. C. G. Stockton, Buffalo.
92 Stigmata of Decadence in Gynecology. R. T. Morris, New York.
93 Possible Errors in Diagnosis of Abdominal Cancer—Plea for Exploratory Laparotomy—Illustrative Cases. W. S. Bainbridge, New York.
94 Contraction Ring Dystocia. P. T. Harper, Albany.
95 Case of Near Death after Intravenous Injection of Salvarsan. V. C. Pedersen, New York.
96 Infant Feeding with Undiluted Cow's Milk. W. B. Hanbidge, Ogdensburg.
97 Abscess of Lung—Case Study. F. B. Cross and H. F. Graham, Brooklyn.
98 Loose Sacro-Iliac Synchrondrosis and Its Treatment. C. C. Zacharie, White Plains.
99 Future of Trained Nursing in Surgery. M. B. Tinker, Ithaca.
100 Tuberculin Treatment. E. R. Baldwin, Saranac Lake.
101 Blood Platelets. J. W. W. Dimon, Utica.

Quarterly of Federation of State Medical Boards of United States, Easton, Pa.

October, I, No. 1, pp. 1-95

102 Preparation for the Professions. H. S. Pritchett, New York.
103 Homeopath's Viewpoint of Medical Education. R. S. Copeland, New York.
104 Chief Needs and Functions of Federation of State Medical Boards. N. P. Colwell, Chicago.
105 Address to State Boards. W. A. Spurgeon, Muncie, Ind.
106 Uniform State Laws—A Necessity. C. T. Terry, New York.
107 Rules and Regulations Governing Examinations. J. M. Baldy, Philadelphia.
108 Discipline of Character in Medical Education. E. A. Philbin, New York.
109 Universal Reciprocity. B. D. Harison, Detroit, Mich.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October, X, No. 118, pp. 433-480

1 *Two Cases of Chyliform Effusion. H. A. Lediard.
2 Four Cases of Relapsing Pneumonia in Young Children. R. R. Armstrong.
3 Case of Cutaneous Diphtheria. W. B. Jack.

1. Chyliform Effusion.—The first case cited by Lediard was one of chyliform ascites (tuberculous). The patient was 18 years of age. When aged 5½ an attack of abdominal pain first came on, resembling peritonitis, followed a month later by a second attack with similar symptoms, and recovery was associated with emaciation. At the age of 7 there was a slight threatening of the old abdominal pain. For the next eight years the boy was of delicate health. When Lediard first saw him the swollen abdomen contrasted markedly with a thin, pale face and limbs destitute of fat and poor in muscle. The face was expressive of prolonged physical depression rather than of pain, the disposition was quiet, the habits studious and the appetite capricious. The costal margin was much displaced by prolonged pressure from below, the abdomen was moderately tense and had a fluctuant wave all over. The anterior abdominal wall showed distended veins, and when he coughed fluid passed down the left inguinal canal into the scrotum. The enlargement of the abdomen had been remarked six years before Lediard saw him. Dulness on percussion was found for a limited area above the umbilicus; elsewhere bowel seemed to float above the fluid. Temperature was 101 F. There was no vomiting or cough, but diarrhea was a prominent symptom. The urine was free from albumin and sugar; bile-pigment was present in small amount, but no jaundice of the skin was noted.

From the history and from the physical examination a diagnosis of tuberculous peritonitis was arrived at and drainage of the abdomen recommended. Four days later visible pulsation of the heart was seen in the second and third interspaces, the liver was displaced upward, and the patient complained of the tightness of his clothes. On account of the rapid respiration and cardiac displacement, an incision was made above the umbilicus, with the result of striking a milk-white fluid at once. Six pints were removed and a drainage-tube inserted, but the abdomen was not explored. After the tapping fluid was not felt again in the scrotum, proving that the fluid was free in the peritoneal cavity. Abdominal drainage was instituted and death ensued three weeks later.

The necropsy showed that tuberculous disease was widely distributed throughout the body. The peritoneum, omentum, mesenteric lymph-nodes, liver, spleen, kidneys, lungs and brain all showed, either with the naked eye or with the microscope, a deposit of tubercle. As regards the lymphatic system in the abdomen, the receptaculum was apparently obliterated in a mass of glands and fibrous tissue, and the different lymphatics showed a very marked distention. Obliteration of the *receptaculum and evidence of dilatation of the lymph*-vessels behind the obstruction were the main features in the pathology, the morbid material was tubercle, and the method of chyliform ascites was by transudation. No perforation was found. Death was due to tuberculous infection of the membranes of the brain, after a long period, during which the disease was limited to the abdomen. The second case was one of chyliform ascites associated with Hodgkin's disease.

British Medical Journal, London

October 4, II, No. 2753, pp. 837-896

4 Medical Needs of India. C. P. Lukis.
5 Problems of University Medical Education in London. W. Hunter.
6 Provincial School of Medicine and Provincial University. C. S. Sherrington.
7 *Two Unusual Cases of Liver Abscess. H. D. Rolleston.
8 Splenomegaly. E. S. Stevenson.
9 Two Hundred Cases of Ringworm Treated by Roentgen Rays. F. Emrys-Jones.
10 *Bedbugs and Leprosy. D. Thomson.
11 Non-Diabetic Glycosuria. A. E. Garrod.
12 Fibrositis and Muscular Rheumatism. A. P. Luff.
13 **Differentiation of Rheumatoid Arthritis.* P. King.
14 Heart as Affected by Stomach. W. Broadbent.
15 *Arterial Pressure in Thoracic Aneurysms. M. Mackinnon.

7. Liver Abscess.—In one case cited by Rolleston intrahepatic suppuration was evidently due to infection, conveyed by means of exploratory puncture, from a right-sided empyema. An exploring needle was inserted in the sixth intercostal space in the axillary line and in the eighth intercostal space in the line of the inferior angle of the scapula, but no fluid was withdrawn from these two punctures. Next day the trocar of an aspirator was inserted into the eighth space in the line of the inferior angle of the scapula, and in the sixth space in the posterior axillary line, but only a small quantity of blood and serum was withdrawn. From the fifth space in the anterior axillary line about 1 oz. of thick pus was aspirated with difficulty; it contained a Gram-positive coccus. At 8 p. m. 1 inch of the eighth rib was resected below the inferior angle of the right scapula and the pleura opened and solid lung was found; the wound was plugged. One inch of the sixth rib in the anterior axillary line was then resected, and about a pint of creamy, odorless pus was evacuated from the fissure between the upper and middle lobes. After this the temperature continued to oscillate between 103 and 97 F.; the pulse varied between 140 and 100, and the respirations between 44 and 24. It was obvious that there was retained pus although the discharge was free, but the patient's condition rendered further operative interference undesirable.

Death occurred from sudden collapse. A necropsy was performed. The right pleural cavity contained two distinct abscess cavities of which one had been drained and the other had not been opened. The liver, which weighed 4 pounds 12 ounces, was enlarged and was adherent to the diaphragm. Over the anterior and diaphragmatic surface of the right lobe there was an area the size of the palm of the hand projecting from the surrounding liver tissue. It was obviously an area of suppuration and showed a small puncture on a level with the fifth rib. Section revealed a large multilocular abscess, several of the loculi near the puncture being full of blood-clot. The puncture opened directly into a space containing blood-clot and pus. The second case was one of small latent solitary hepatic abscess in an infant.

10. **Bedbugs and Leprosy.**—A total of 105 bedbugs fed on lepers and thirty-five caught in the beds of lepers and examined by Thomson for leprosy bacillus gave no evidence that these insects harbor or transmit the disease. A further total of 107 bedbugs were examined as controls; twenty-five of these were caught in dwellings in Liverpool; the remainder were caught in the Spanish wards in Ancon Hospital in Panama. The controls also gave negative results. The Ziehl-Neilsen stain was used throughout. Full details of this investigation will be published later.

13. **Differentiation of Rheumatoid Arthritis.**—Though King admits that osteo-arthritis and rheumatoid arthritis may be due to infection, he says it is usually easier to trace this infection and certainly easier and more hopeful to treat it by vaccine in the latter than in the former. Among sources of infection pyorrhea alveolaris and gonorrhea are the most common. Auto-intoxication from toxins of the alimentary canal is also a potent cause. With regard to the affection of the temporomaxillary joints, King says it is an interesting point to notice that while it is frequently seen in rheumatoid arthritis, and almost always in the infective cases, and associated with spondylitis deformans, it is seldom seen in osteo-arthritis, in which spondylitis deformans alone is often met with. He suggests that osteo-arthritis should be differentiated from rheumatoid arthritis; that neither of these conditions should be considered a distinct disease, and seeing that either of them may be due to an infective process, it might be well to form a third group and speak of it merely as an infective arthritis.

15. **Arterial Pressure in Thoracic Aneurysms.**—From the result of treatment of forty patients Mackinnon is convinced that potassium iodid does not reduce the blood-pressure in aneurysm, although it relieves pain in many cases. Relief of pain can also be induced by other means, notably by the injection of sterilized solution of gelatin, a method of treatment first introduced by Lancereaux in 1904. Dr. Rankin, of the Seamen's Hospital, used this method in many cases, and Mackinnon had the privilege of examining the blood-pressure in these cases while undergoing treatment. In no single instance, however, had the gelatin any effect in reducing the blood-pressure, but there was very marked relief of pain in almost every instance where such symptom was a prominent feature at the commencement of the treatment. Mackinnon found that the blood-pressure in aneurysm is usually about normal. In about 65 per cent. of cases there is a difference in the pressure in both arms. In 30 per cent. of cases this difference is very marked and is a valuable aid to diagnosis. Reduction of the blood-pressure is a great relief to the patient and helps toward the cure. The lower the pressure, providing the pulse is regular and of normal rate, the better the prognosis.

Indian Journal of Medical Research, Calcutta

July, I, No. 1, pp. 1-211

16 Certain [illegible] s of Genus Musca, with Descriptions [illegible] W. S. Patton and F. W. Cragg.
17 New Spe[illegible] with Some Remarks on Genus. W. S. Patton and F. W. Cragg.
18 Natural Host of Phlebotomus Minutus. F. M. Howlett.
19 Insect Life-Histories and Parasitism. F. M. Howlett.
20 Investigation of Cholera Vibrio in Biliary Passages. E. D. W. Greig.
21 Investigation of Epidemic of Cholera Caused by "Carrier." E. D. W. Greig.
22 Investigation of Cholera Convalescents and Contacts in India. E. D. W. Greig.
23 Cholera Bacillus in Urine of Patients with Cholera. E. D. W. Greig.
24 Present Knowledge of Dysentery. J. Cunningham.
25 Hemolytic Action of Quinin and Its Salts, with Suggestions Regarding Etiology and Treatment of Blackwater Fever. A. C. MacGilchrist.
26 Diagnosis of Latent Malaria. H. W. Acton and R. Knowles.
27 Kala Azar, Its Distribution and Probable Modes of Infection. C. Donovan.
28 Is Kala Azar in Madras of Animal Origin? W. S. Patton.
29 Specific Gravity of Blood. H. W. Acton and R. Knowles.
30 Revised List of Malayan Anophelines. C. Strickland.
31 Kurloff Bodies. R. Knowles and H. W. Acton.

Journal of Laryngology, Rhinology and Otology, London

October, XXVIII, No. 10, pp. 509-564

32 Two Cases of Subglottic Tumor. R. H. Woods.
33 Nasal Thermometry: Method of Determining Influence of Nose on Temperature of Inspired Air. A. B. Kelly.
34 What Becomes of Sinuses That Have Been Operated On? E. J. Moure.

Journal of Obstetrics and Gynecology of British Empire, London

August, XXXIV, No. 2, pp. 61-132

35 Two Cases of Uterine Fibroid in Which Degeneration in Tumor—Perithelioma and Necrobiosis—Caused Difficulty in Diagnosis. A. H. F. Barbour.
36 *Four Cases of Inversion of Uterus. J. N. Stark.
37 Intra-Abdominal Pressure in Pregnancy. (To be continued.) R. H. Paramore.
38 *Glycogen Content of Mucous Membrane of Fallopian Tube. V. J. McAllister.

36. **Inversion of Uterus.**—The only treatment of chronic pathologic inversion worthy of consideration, according to Stark, is the removal of any tumor present and either hysterotomy or hysterectomy. Hysterotomy is the operation of selection when the patient is a young parous woman. It is contra-indicated and hysterectomy must be performed (1) if a malignant tumor is present; (2) if there is either thickening and hardening of the uterine wall or softening and atrophy of the musculature, and (3) if there are dense peritoneal adhesions binding down the uterus or fixing bladder or rectum. And finally, Stark concludes, if hysterectomy is decided on, the abdominal rather than the vaginal route ought to be selected for the performance of the operation.

38. **Glycogen in Tubal Mucosa.**—The material examined by McAllister comprised the fallopian tubes from twenty-nine gynecologic and obstetric cases of different kinds. The operations were for uterine rupture, fibromyoma, carcinoma ovarii, pregnancy complicated by fibroids, salpingitis, metritis, carcinoma of cervix, tubal pregnancy, pregnancy in a case of phthisis and ovarian cyst. McAllister found glycogen present in the epithelial cells of the mucous membrane of seven of the tubes examined. The first tube in which it was found was from a patient with metritis. The next case in which the tube mucous membrane was found to contain glycogen in large amount was one of extensive uterine fibromyoma complicating a five months' intra-uterine pregnancy. The glycogen appeared in the form of minute granules in the protoplasm of the epithelial cells and also on their free border lying in the tube lumen. In a case of carcinoma of the portio vaginalis uteri the endometrium was glycogen-free, the patient having ceased to menstruate a week previous to operation. The tube mucous membrane and the muscle fibers close to the lumen of the tube, as well as the lumen itself, showed its presence in considerable quantity. The cancer cells contained glycogen here and there in the form of minute grains.

In a case of uterine rupture at full term the mucous membrane and the muscular tissue close to the lumen of the isthmial portion of the tubes contained glycogen in considerable amount. The corpus luteum was glycogen-free. In a case of hysterectomy for fibromyoma the glands of the endometrium were packed with glycogen, while the tubes were glycogen-free. In a case of early tubal gestation, in which the plicae in the tube contained numbers of decidua cells, only a few of the latter showed mere traces of glycogen. Neither muscle fibers nor mucous membrane showed glycogen. In a case of uterine rupture at full term decidua cells found in one of the tubes (isthmus) contained mere traces of glycogen; the muscle fibers showed a good deal, while the epithelial cells of the mucous membrane were nearly glycogen-free. The isthmial tubes belonging to a two months' pregnant uterus showed no trace of glycogen. In an early case of salpingitis operated on a week after cessation of previous menstruation there was no glycogen in the tube except in the polymorphonuclear leukocytes.

In a case of carcinoma colli the endometrium contained some glands which showed considerable glycogen content, as also did the superficial epithelial cells. The majority of the glands were glycogen-free and so was the tube. In a case of hysterectomy for fibromyoma ten days after the cessation of the preceding menstruation the entire tube was glycogen-free. In a case of early isthmial tubal pregnancy with rupture, the ampulla epithelium contained much glycogen. The actual site of the pregnancy was not examined. The muscle fibers were also rich in glycogen. In a case of salpingitis with extensive infiltration of the plicae and presence of many plasma cells, operated on four weeks after previous menstruation, there was no glycogen present except in the polymorphonuclear leukocytes. In a case of tubal abortion and hematocele operated on two months after last menstruation the tube was glycogen-free. In a case of hysterectomy for myoma about three weeks after cessation of previous menstruation, the endometrium was typically premenstrual and the glands very rich in glycogen. The tube mucous membrane contained no glycogen, the muscle fibers a little.

In a case of salpingitis with intense infiltration, glycogen was absent, except in the leukocytes, where it was plentiful.

In carrying out this investigation McAllister had two chief aims in view, the first being to discover whether the mucous membrane of the tube ever contained glycogen and the second to discover whether, in the case of a positive finding regarding the presence of glycogen, the glycogen content was subject to a cyclic variation in relation to menstruation, as is the case with the endometrium. The first question he answers definitely in the affirmative, as in seven of the tubes examined glycogen was present in considerable amount in the cells of the mucous membrane. The investigation further shows that pregnancy is not essential to the presence of the glycogen. The second question requires further investigation but the results cause McAllister to state that undoubtedly the glycogen content of the mucous membrane of the tube undergoes considerable variations, and that, at a time when the endometrium presents all the signs of secretory activity and the epithelial cells of its glands are loaded with glycogen, the mucous membrane of the tube can be glycogen-free, and, vice versa, when the endometrium is free from the glycogen, the tube mucous membrane may contain it in considerable amount.

Lancet, London

October 4, II, No. 4701, pp. 977-1040

39 Medical Needs of India. C. P. Lukis.
40 Medicine as Liberal Education. W. S. Handley.
41 Work of Medical Profession in India. J. P. Hewett.
42 *Two Cases of Auricular Flutter. J. Hay.
43 Hemiplegia Following Syphilis. M. Mackinnon.
44 Syphilis: Its Dangers to Community and Question of State Control. H. C. French.
45 Foreign Bodies in Air Passages. W. G. Howarth.
46 Acute Epididymo-Orchitis due to Bacillus Coli. W. P. Bonner.
47 Neuroma-Myoma of Mesentery. P. Paterson.
48 Retraction Ring as Cause of Obstruction in Labor. R. Jardine.
49 Tuberculosis of Uterus. J. W. Thomson.

42. **Auricular Flutter.**—A man aged 62 came under Hay's observation with a large heart and peculiar arrhythmia. For ten years the heart had been known to be increased in size and occasionally irregular in its action. The auricular rate was 300; the ventricular 50 to 60, and coupled. A month later a 3 to 1 Cheyne-Stokes respiration and alternation of the pulse were noted. Large doses of digitalis produced a high grade of heart-block, but the auricular flutter persisted and is still present. The general condition of the patient is much improved. A small dose of digitalis daily is required to moderate the frequency of the ventricle. Hay has records of a man of 46 extending over a period of about seven years, demonstrating the presence of auricular flutter with a 3 to 1 ratio and occasional irregular action of the heart. When first seen alternation of the radial pulse was pronounced; this disappeared entirely while under observation. Later a 4 to 1 ratio was observed. Then in 1908 under the influence of squills the auricular flutter changed to auricular fibrillation, which in its turn gave way to a normal sequence of contraction. The heart continues to contract normally, and the patient, much improved, is earning his living.

Archives des Maladies du Cœur, Etc., Paris

September, VI, No. 9, pp. 561-624

50 Triple Rhythm with Mitral Stenosis. (Mécanisme du rythme à trois temps de la sténose mitrale.) C. Pezzi and R. Lutenbacher.
51 Case of Acute Leukemia of Myeloid Type. A. Marchet and J. Rieux.
52 The Anemic Form of Acute Miliary Tuberculosis. (La forme anémique de la granulie.) N. Fiessinger.

Journal de Médecine de Bordeaux

September 21, LXXXIV, No. 38, pp. 607-620

53 Testing Permeability of Arteries in Gangrene. (L'oscillomètre sphygmométrique de Pachon appliqué à l'exploration de la permeabilité artérielle dans les gangrènes.) J. Guyot and G. Jeanneney.

September 29, No. 39, pp. 621-636

54 Biologic Cycle of the Syphilis Spirochete. G. Petges.

Journal d'Urologie, Paris

September, IV, No. 3, pp. 341-542

55 *Radium in Treatment of Prostatic Cancer. O. Pasteau and Degrais.
56 *Rectum as Receptacle for Urine. (Création d'une vessie nouvelle par un procédé personnel après cystectomie totale pour cancer.) G. Lemoine.
57 Technic for Nephrostomy and After-Care. (Moyen de dérivation permanente ou temporaire des urines totales.) J. Pakowski.
58 Uretero-Vaginal Fistula Cured by Retention Ureter Catheter. A. Boeckel.
59 Case of Nephrectomy without Drainage for Renal Tuberculosis. J. Mock.
60 Technic for Posterior Urethroscopy. R. Henry. Commenced in III, No. 6.
61 Danger of Overdoing in Treatment of Gonorrhea. (Valeur des armes que nous possédons contre le gonocoque.) J. Janet.
62 Residual Urine May Interfere with Action of Local Disinfectants. L. Boulanger.

55. **Radium in Treatment of Prostatic Cancer.**—Pasteau and Degrais comment on the extremely grave prognosis of cancer of the prostate even when removed at the first signs of trouble. The immediate results of the operation are bad and recurrence is the rule. Only about a dozen cases of prostatectomy for cancer were on record up to 1911, and the outcome of the operative cases since that date has shown no improvement. This being the case, the results of radium treatment seem to be particularly encouraging. They have applied it in fifteen cases of supposed cancer of the prostate. Two physicians were among the patients and these, realizing the gravity of their condition, displayed great perseverance in taking the course and the results in these cases were better than in any of the others. Material benefit was realized in every case, the more pronounced, the longer the course.

Three of the patients required an operation for rebellious cystitis later and in each the prostate was found materially reduced in size and of normal consistency. An illustrated description is given of the narrow tube holding the radium; the tube is pushed nearly to the tip of the catheter, just short of the opening near the tip. The radium should never be introduced with the bladder empty. They generally rinse out the bladder first and leave a certain amount of fluid in it. The radium is left in place for three or four hours, at intervals of from three to six days, suspending the treatment for nearly a month after five or six exposures. They reiterate in conclusion that there can be no question that radium has a positive action on cancer of the prostate. The exposures can be made by way of the rectum or urethra, or through an opening in the perineum or bladder. The cancer may be influenced to such an extent that the hitherto inoperable growth may be excised. The radium may at least arrest the tendency to hematuria and in favorable cases may cause the entire tumor to subside, the swollen lymph-nodes in the vicinity retrogressing also.

56. **Rectum as Receptacle for Urine.**—Lemoine reports a case of cancer of the bladder in which he implanted the ureters in the rectum after removal of the bladder, and then later made a new bladder by bringing down the sigmoid flexure between the serous and mucous membranes of the rectum, leaving the rectum free to serve as a bladder without contamination from stool. The lower end of the rectum was sutured to the bulb of the urethra. It thus emptied through the urethra and through a drain introduced through the perineum at its lowest point. The operation did not prove a success in the case reported, the sigmoid loop working up and the lower part of the rectum becoming necrotic so that the patient succumbed the eighteenth day. There was no trace of peritonitis, and Lemoine thinks the principle of utilizing the urethra in this way as the outlet for the rectum-bladder deserves attention.

Lyon Médical, Lyons

September 7, XLV, No. 36, pp. 373-408

63 Acute Poliomyelitis Following Trauma. (Poliomyélite antérieure aigue par traumatisme de la colonne cervicale chez un hérédosyphilitique probable.) A. Gonnet and R. Rendu.
64 *Oiling Ponds, Etc., to Prevent Local Fogs.* (Le brouillard à Lyon; comment il se forme; comment l'en empècher.) P. Aubert

September 14, No. 37, pp. 409-448

65 Abnormal Heart Sound Result of Pleural Adhesions; Four Cases. (Pseudo-dédoublement du deuxième bruit du cœur simulant le dédoublement mitral par bruit extra-cardiaque télésystolique surajouté.) L. Gallavardin.

September 21, No. 38, pp. 449-488

66 Compound Fracture of Leg in Man of 60. Reduction of Fragments by Iron Wire Ligature, Later with Wire Fastened in Plaster Cast. Recovery without Shortening. Chaussende.
67 Changes in the Pulse with Insufficiency of the Left Ventricle. L. Gallavardin and L. Gravier.

Presse Médicale, Paris

September 13, XXI, No. 75, pp. 749-756

68 Recurrence of Syphilis or Reinfection after Salvarsan. P. Ravaut.

September 17, No. 76, pp. 757-764

69 The Luetin Skin Reaction in Syphilis. H. Noguchi (New York).

September 20, No. 77, pp. 765-776

70 Experimental Surgery. A. Carrel (New York).
71 Pathology of the Sympathetic System and its Symptoms. (Les sympathoses.) M. Laignel-Lavastine.

September 24, No. 78, pp. 777-784

72 Technic for Examining the Bundle of His. L. Rénon and E. Géraudel.
73 *Emetine to Arrest Hemorrhage from the Lungs. (Le traitement des hémoptysies par l'émétine.) C. Flandin.

September 27, No. 79, pp. 785-792

74 Lesions in the Thyroid with Chronic Rheumatism. C. Aubertin and A. Pascano.

73. **Emetine in Treatment of Hemoptysis.**—Flandin was impressed by the prompt disappearance of blood from the stools in cases of amebic dysentery treated by hypodermic injection of soluble salts of emetine. This suggested the possibility of the drug's proving effectual in treatment of hemoptysis, and the results have more than justified this anticipation. He applied the remedy by the same technic as for dysentery (compare The Journal, March 27, 1913, p. 917), injecting into the thigh 1 c.c. of distilled water containing 0.04 c.c. of emetine hydrochlorid. The result of the injection was surprising, the hemorrhage from the lung stopping immediately. No disagreeable sensation was experienced, no palpitations, dizziness or nausea. In some cases there was no longer a trace of blood in the sputum, but usually there are occasional blackish clots for a time. In the more threatening cases the hemoptysis may return and consequently he repeats the injection twelve hours later and once on the following day to a total of five. With the exception of one case of galloping tuberculosis, the tendency to pulmonary hemorrhage was definitely arrested in all his eight cases as also in twelve others in the experience of other physicians. He determined the arterial pressure before and after the emetine and was unable to note any appreciable change in this or in the coagulation of the blood or the blood-count. The measure seems to be entirely harmless and has succeeded when all others have failed.

Revue de Chirurgie, Paris

September, XXXIII, No. 9, pp. 345-536

75 Operative Treatment of Crippled Knee. (Traitement sanglant des ankyloses vicieuses du genou.) P. Brocq. To be continued.
76 *Chondrectomy for Pulmonary Emphysema. (La théorie et l'opération de Freund dans l'emphysème pulmonaire.) S. Roubachow.
77 *Primary Cancer of the Small Intestine. (Le carcinome primitif du jéjuno-iléon.) A. Venot and A. Parcelier. Commenced in No. 5.
78 Tumors in the Spine. (La chirurgie des tumeurs du rachis et de la moelle.) G. Potel and Veaudeau. Commenced in No. 5.

76. **Chondrectomy for Emphysema of the Lungs.**—Roubachow traces the history of Freund's operation and tabulates the cases on record in which it has been applied. He thinks there is no doubt that when the chest wall loses its elasticity from hardening of the cartilages the lung does not expand and retract normally but persists distended and an emphysematous condition results. By mobilizing the chest wall, especially by resecting the costal cartilages, the wall regains its elasticity to a certain extent. Freund called attention as long ago as 1858 to the predisposition induced in the apex by degeneration of the first costal cartilage, rendering narrower the upper part of the chest wall. Degeneration of the cartilages lower down causes dilatation of the chest wall; in both types the wall loses its elasticity. Roubachow has found twenty-six cases on record in which chondrectomy has been applied with excellent results after intervals surpassing a year; also in twenty-five cases under observation for less than a year; in six other cases the improvement was only of brief duration; in four others there was improvement but it was not evident until after a certain period; in six cases no benefit was derived, and eight surgeons have reported nine fatalities.

77. **Primary Cancer of the Jejunum-Ileum.**—In about 40 per cent. of such cases the cancer develops in such a way as to obstruct the intestine earlier and more completely than with cancer of the large intestine, but this very fact enables radical treatment to be applied more promptly. In sixteen cases in which a radical operation was done before complete occlusion, thirteen of the patients were cured; the mortality was only 18.7 per cent. In ten patients operated on after occlusion had developed, only three were cured, the mortality being thus 70 per cent. Resection was done in twenty-six cases compiled here and analyzed from various points of view.

Revue de Médecine, Paris

September, XXXIII, No. 9, pp. 673-752

79 Epileptic Dementia. R. Benon and A. Legal.
80 Results of a Combined Method of Treatment for Tuberculosis. A. Krowiewicz.
81 Congenital Malformation in Two Brothers, Children of Lepers. G. Barbezieux.

Revue Médicale de la Suisse Romande, Geneva

September, XXXIII, No. 9, pp. 661-720

82 An Active Principle of Ergot. (La para-oxyphényléthylamine.) A. Mayor and B. Wiki.
83 Thrombosis from Slight Overexertion of the Arm; Two Cases. P. Gautier.
84 Bilateral Torsion of Ovarian Cysts; Two Cases. Garin.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

September, XXI, No. 9, pp. 257-284

85 Normal Weaning. (Le sevrage normal.) A. Moussous and E. Leuret.
86 Failure of Hypophysis Treatment; Ten Cases. P. Delmas.
87 Emergency Paracentesis for the Asphyxiated Newly Born with Syphilitic Ascites. A. Bonnet-Laborderie.

Beiträge zur klinischen Chirurgie, Tübingen

July, LXXXV, No. 3, pp. 521-724

88 Tuberculosis of Tracheobronchial Lymph-Nodes and Operative Treatment. Belke.
89 Experimental Research on Homoplastic Fascia Grafts. B. Valentine.
90 Means to Detect Incipient, still Invisible Varices. (Ein palpatorisches Symptom der Klappeninsufficienz und nicht sichtbaren Varicen.) E. Hesse.
91 Cancer of Branchial Origin; Nine Cases. H. E. Lorenz.
92 Marmorek's Antituberculosis Serum. G. Reimann.
93 Spontaneous Suppuration of Echinococcus Cyst in the Liver. Ritterhaus.
94 Crushing of Chest with Stasis Cyanosis. (Fall von Thoraxkompression mit Stauungsblutungen bes. des Augenhintergrundes.) A. Zimmermann.
95 Operative Treatment of Epilepsy; Thirty-Two Cases. F. Rauch.
96 Bile Peritonitis. C. Sick and E. Fraenkel.

97 Acute Progressive Peritonitis; 160 Operative Cases. M. Fischer.
98 Influence of Crude Paraffin Oil on Proliferation of Epithelium. (Einfluss des Rohparaffinöls auf das Epithelwachstum.) F. Esslinger.
99 Aneurysms of Arteries of Small Caliber. N. Dobrowolskaja.

Berliner klinische Wochenschrift

September 22, L, No. 38, pp. 1741-1788

100 *The Urea Index with Prostate Trouble. (Nutzen der Anwendung der Harnstoffsekretionskonstante bei den Prostatikern.) E. Legueu.
101 Curvature of the Spine. (Erfahrungen und Erwägungen über die neue Verbandbehandlung der Skoliose nach Abbott.) O. Vulpius.
102 Sporothrix Process in Upper Jaw. (Nekrotisierende Osteoperiostitis sporotrichotica des Oberkiefers.) G. D'Agata.
103 Electric Treatment of Weak Heart. (Die präcordial unipolare Spitzenausstrahlung hoher Frequenz und hoher Spannung bei Herzinsuffizienz.) O. Libotte.
104 Electric Treatment of Appendicitis. C. Salse.
105 *Technic for Bacteria Count. (Einfaches Instrument zur Bestimmung der Bakterienmenge.) E. Rosenthal.
106 Slight Diagnostic Import of Albumin Content of Sputum. A. Berkovits and F. Rudas.
107 Active Pulmonary Tuberculosis Does not Contra-Indicate *Intravenous Salvarsan Treatment.* R. Klokow.
108 Incarcerated *Diaphragm* Hernia. (Seltener Fall eines eingeklemmten Zwerchfellbruches.) J. N. Gurewitsch.
109 *Diphtheria Bacilli in the Urine. E. Freifeld.
110 *Tests for Vision on Suspicion of Malingering. (Ueber Dissimulation bei Augenleiden.) Segelken.

100. The Urea Index with Prostate Trouble.—Legueu states that he has calculated the urea coefficient according to Ambard's formula in 900 cases, and has found it of the greatest help in estimating conditions in the urinary apparatus. The findings throw light on kidney functioning and no other functional tests, etc., can approach it in the wealth of information it furnishes. The formula is based on the law that there is a constant proportion between the proportion of urea in the blood and the square root of the figure representing the amount of urea eliminated in the urine. (A previous article on the subject by Legueu was summarized in The Journal, May 13, 1913, and the formula was given in The Journal, 1912, lix, 229 and 818.) Taken in connection with the clinical picture and investigation of the factors of the dropsy-inducing nephritis, it proves a valuable guide whether to operate or not for prostatic disturbances. He cites a number of instances to show the importance of the information thus derived, the operation or the course of the cases confirming in every particular the correctness of the deductions based on Ambard's formula.

105. Easy Bacteria Count.—Rosenthal uses a centrifuge glass the tip of which is drawn out into a graduated capillary with a rubber screw cap. A drop of mercury is placed in the cap and the bacteria assembling in the capillary on centrifuging can be measured above the mercury. The method is approximately accurate and is particularly useful for comparing the bacteria counts between different diseases or cases or at different periods in the same case or from different cultures.

109. Diphtheria Bacilli in the Urine.—Freifeld states that diphtheria bacilli can still be cultivated constantly from the urine of a girl baby who had diphtheria at the age of ten months, six months ago. The diphtheric throat process was so mild that its true nature was not recognized but the bladder then became involved and there has been periodical expulsion of scraps of false membranes ever since. The bladder process is mild also; the vagina and urethra are not affected. He has not been able to find any record in the literature of this localization of a diphtheric process in the bladder mucosa. Diphtheria antitoxin was given when the bacilli were first found in the urine but it seemed to have no effect. Freifeld has examined the urine of ten other diphtheria patients and found the bacilli in the urine in four; the latest examination was made four weeks after the beginning of the diphtheria.

110. Deception in Tests for Vision.—Segelken was examining a man for a position requiring normal visual capacity. With one eye covered with a clean folded handkerchief which the man took from his pocket and pressed over the eye, the vision with each eye in turn seemed satisfactory. Segelken discovered just in time, however, that the folded handkerchief had a round hole cut through all the thicknesses, which were basted together.

Deutsches Archiv für klinische Medizin, Leipsic

CXI, Nos. 5-6, pp. 417-583. Last indexed Oct. 4, p. 1333

111 Pernicious Anemia with Myeloblastosis. (Wucherung myeloblastenähnlicher Elemente—diffuse Myeloblastose?—in den retroperitonealen Lymphdrüsen in einem Fall von perniziöser Anämie.) K. Nicol.
112 Causes of Retention of Chlorids in Fever. (Zusammenhang zwischen Funktion der Nieren und Chlorretention bei fieberhaften Krankheiten.) (Permeabilitätsänderung der Zellen als Ursache der Chlorretention bei fieberhaften Krankheiten.) J. Snapper.
113 Lymphogranulomatosis. (Fall generalisierter [illegible] schwellung lym[illegible] Gleichzeitig Bei[illegible] maligna.) R. Hertz and F. Wretowski.
114 Respiration in Heart Disease. (Atmung bei Herzkranken.) R. Reinhardt.
115 Acetone Bodies Found in the Liver. (Vorläufige Mitteilung über den Ort der Acetonkörperbildung nach Versuchen mit Phlorrhizin an der partielle ausgeschalteten Leber nebst einigen kritischen Bemerkungen zur sog. Fleischintoxikation beim Eck'schen Fistelhunde.) F. Fischler and H. Kossow.
116 Changes in the Electrocardiogram Corresponding to Changes in the Work of the Heart. (Experimentelle Untersuchungen über die Veränderungen des Elektrokardiograms bei Aenderung der Herzarbeit.) W. Weitz.
117 Curable Acute Liver Disease. (Heilbare akute Hepatitis.) A. Bittorf.
118 Lymphogranulomatosis. R. v. Jaksch.

Deutsche medizinische Wochenschrift, Berlin

September 25, XXXIX, No. 39, pp. 1865-1920

119 *Present Status of Transplantation of Organs. R. Stich.
120 *Hot Baths in Treatment of Bronchitis and Pneumonia in Young Children. Arneth.
121 The Blood and Cerebrospinal Fluid with Disease of the Central Nervous System. V. Kafka.
122 *Nature of General Anesthesia and Allied Phenomena. (Ueber Narkose und verwandte Erscheinungen.) J. Traube.
123 Successful Resection of Diaphragm. (Zur Resektion des Z[illegible]) J. Jankowski.
124 [illegible] (Hat der Balkankrieg uns neue Gesichts- [illegible] der Behandlung kriegschirurgischer Verletzungen gebracht?) D. Herhold.
125 Radium in Treatment of Plastic Induration of the Penis A. Dreyer.
126 Pregnancy Intoxication. (Zur Therapie der Schwangerschaftstoxikose.) E. Engel.
127 Serodiagnosis of Syphilis. (Die Herman-Perutzsche Syphilisreaktion.) J. Kallos.
128 New Seaside Sanatorium for Children. (Das Kaiser Wilhelm-Kinderheim in Ahlbeck.) v. Niedner.

119. Present Status of Transplantation of Organs.—Stich gives an interesting review of what has been accomplished in this line to date, his conclusion being that the matter is still in the tentative stage.

120. Hot Baths in Bronchitis and Pneumonia in Young Children.—Arneth emphasizes that air and more air is the imperative need in treatment of respiratory affections in young children. He also urges the extreme necessity of changing the position of the child every hour or so. The prone position aids mechanically in draining away the secretions as the pneumonic processes are usually most intense at the back of the lung. In treatment he has long made a practice of cold packs and baths but has changed to hot baths of recent years, finding them superior in every respect, especially for weaker children who chill readily at the surface while the febrile temperature accumulates in the center. The hot baths draw the heat to the surface, and he has never witnessed any injurious effect from their use. The higher the temperature, the weaker the child and the more defective the peripheral circulation, the more frequent the baths, up to five a day. With a temperature of 39 C. (102.2 F.) he gives the bath for ten minutes. The water is kept at 41 C. (105.8 F.) adding more hot water as it cools. These hot baths are easy of application while the temperature goes down under them to a remarkable extent. The reduction is most marked in thirty to sixty minutes afterward. A temperature over 40 or 40.5 C. (104 or 105 F.) does not contra-indicate the baths for infants or very young children, but with more robust and older children merely warm baths may be preferable.

He concludes the hot bath with a cool douche for which the conditions are extremely favorable as the back of the neck and chest are intensely hyperemic so that the reflex gasp can be elicited most readily. One nurse holds the child's head with both hands, protecting the mouth and nose against aspiration of water, and raises the child out of the hot water until the back of the neck is exposed; a second nurse then dashes a dishful of cold water fresh from the faucet over the back of the neck, just once. The child gasps for breath, exerting all the auxiliary muscles. It is then laid back in the hot water and the cold water is dashed on the chest. The whole procedure lasts only a few moments, after which the child is dried and wrapped in warmed clothes. No aftersweating is observed and the child is ready to eat. No unfavorable action on the heart was ever detected even with much debilitated infants. On account of the excellent action in every respect of the hot baths, he continues them once a day into convalescence if the child still coughs, even when there is nothing pathologic to be detected in the lungs. He makes a practice of applying the hot baths not only in febrile bronchitis, bronchiolitis and bronchopneumonia, but also in prophylaxis in cases of nasal catarrh, only that with this he refrains from the cold douche and wraps the child warmly to induce sweating. Omitting the cold douche, he applies the hot baths also in various affections of infants, with or without fever, when the peripheral circulation is defective. Great care must be taken that the child's bed is well warmed to prevent secondary loss of heat after the bath. In conclusion, he reiterates that the hot bath with the concluding dash of cold water must be regarded as a specific method of treatment for bronchitis and pneumonia in young children. It reduces the fever, acts as a revulsive and stimulates expectoration and deeper breathing, and thus prevents or puts an end to atelectasia and stagnation of the secretions, while it has a marked soothing, refreshing and sleep and appetite-promoting action and shortens the course of the disease. He gives a number of curves and tables to illustrate the effect of the hot baths.

122. **Physical Factors Responsible for Action of Anesthetics, Etc.**—Reviewed editorially.

Deutsche Zeitschrift für Chirurgie, Leipsic

September, CXXIV, Nos. 1-4, pp. 1-429. A. Bergmann Festschrift

129 *Solitary Cysts in the Long Bones. G. v. Bergmann.
130 *Chronic Cystic Mastitis and Malignant Degeneration. A. Bertels.
131 Remarkably Rapid Healing of Wounds in Lepers. R. Biehler.
132 *Operative Treatment of Epilepsy. L. Bornhaupt.
133 Loose Bodies in Joints. (Zur Kasuistik der Gelenkmäuse.) O. Brehm.
134 Mal Perforant of the Foot. C. Brutzer.
135 Temporary Ligation of Portal Vein; Three Cases. N. Burdenko.
136 No Wassermann Reaction in Twenty-Seven Cancer Cases. J. Eliasberg.
137 *Transvesical Operative Treatment of Prostatic Hypertrophy; Thirty-One Cases. G. v. Engelmann.
138 Vast Accumulation of Gas in Open Abdominal Cavity. C. Falkenburg.
139 Ivory Peg in Treatment of Fracture. (Wert der Hornbolzung und deren Technik.) W. Greiffenhagen.
140 *Incarcerated Hernia; 420 Cases. V. Gussew.
141 Firearm Wounds of the Lungs; 571 Cases. (Ueber Lungenschüsse im Kriege 1904-1905.) O. Holbeck.
142 *Volvulus of the Large Intestine. J. Jankowski.
143 Changes in Structure of Bone Substance in Osteomyelitis, and Their Causes. P. Klemm.
144 Experimental Deforming Arthritis. v. Manteuffel.
145 Diagnosis and Treatment of Firearm Wounds of the Spleen. (Schussverletzungen der Milz.) F. Michelsson.
146 *Diagnostic Significance of Yellow Tint — Xanthochromia—of the Cerebrospinal Fluid. E. Schwarz.
147 Ligation of Jugular Vein in Operative Treatment of Otitic Sinus Thrombosis; Twenty Cases. F. Voss.
148 *Results of Operative Treatment of Pleural Empyema in Children. F. Werner.

129. **Cyst in Femur.**—All but one or two of the twenty articles in this number of the *Zeitschrift* issue from Russian hospitals. In Bergmann's case a solitary cyst developed in the femur after an oblique fracture.

130. **Chronic Cystic Mastitis.**—Bertels states that he has encountered fourteen cases of this affection in the last three years and describes the history, findings and probable mechanism in these cases, in six others in his experience, and in six somewhat similar cases in men. A transformation into cancer was evident in seven of the female cases and in a few of the men.

132. **Operative Treatment of Epilepsy.**—The result in four of the eleven cases reported were extremely satisfactory. The epilepsy followed acute poliomyelitis in several of the cases. With the jacksonian type, there is little hope of benefit from the operation if it is delayed until the brain tissue has hardened at the spot and become atrophied. It is not always necessary to excise the nerve-center involved; in one of the cases complete recovery followed merely draining the edema of the arachnoid and making a valve-opening in the dura and skull to relieve the pressure, leaving the facialis center untouched; there has been no recurrence of the epilepsy since. The patient was a boy of 3½ who had been having up to eleven seizures a day following a fall eighteen months before. In the seizures the boy fell backward suddenly, lost consciousness, and there was first a tonic spasm of the right facialis and then clonic twitching, with spasms in right arm and leg, the seizure concluding with twitching in the left facialis domain and left arm and leg.

137. **Prostatic Hypertrophy.**—Engelmann tabulates the details of ninety-one cases in which he applied the Bottini technic and thirty-one with transvesical prostatectomy. In the first group 76.6 per cent. were cured and 11.1 per cent. materially improved; no effect was apparent in 3.3 per cent. and 8.9 per cent. succumbed to preexisting infectious complications. In the thirty-one prostatectomy cases, 80.6 per cent. were cured; 19.4 per cent. died but in only one case could the operation itself be incriminated in the fatality. In this case the bladder had been sutured at once and urine seeped out through the wound. In all the cases afterward he made a point of draining through the abdominal wound. The improvement in the total material has been permanent in all but three patients; these required brief catheterization anew years later. He advocates prostatectomy in all cases of severe infection of the urinary passages as it permits more effectual draining. If the kidneys are much diseased, however, a radical operation of any kind is contra-indicated.

140. **Incarcerated Hernia.**—Gussew concludes from analysis of his 420 cases of incarcerated hernia that the mortality can be reduced only by the more frequent restriction to local anesthesia, by improving the operative technic, by sending the patient to the hospital sooner, and by refraining from attempts to reduce the hernia by taxis. His mortality was 27 per cent. of the total cases and also 27 per cent. of the operative cases outside of those in which taxis had been attempted. An ascaris protruded from the wound the sixteenth day in one case, the patient a woman of 54.

142. **Volvulus of the Large Intestine.**—Jankowski devotes seventy-eight pages to this study of the prognosis with volvulus of the large intestine, as observed in fifty-three cases in the last ten years. The volvulus involved the cecum in five cases, the sigmoid region in the others. In the cecum cases the patients were men between 30 and 40; all were operated on and two recovered. The outcome in all cases of volvulus depends on the promptness with which conditions are corrected by an operation. When intestinal occlusion is diagnosed, he gives the patient a high oil enema and follows at once with a laparotomy if the enema fails to relieve. He generally siphons out the contents of the stomach, too. In twenty-four of his cases the sigmoid flexure had become twisted into a knot with the small intestine and only two of these patients survived. There was an interval of nearly four days before the operation in several cases and the intestine had twisted completely around, 300 degrees and more, thus injuring the wall beyond repair. In about half the cases there had been preceding attacks of pain in the region. In twenty-four cases the torsion was not over 180 degrees and 75 per cent. of these patients recovered. One in this group was 82 years old; the mesosigmoid was sutured to keep it from twisting again.

146. **Discolored Cerebrospinal Fluid.**—Schwarz emphasizes the importance of a yellow tinge to the cerebrospinal fluid in case of trauma affecting the head as it decides the question as to intracranial hemorrhage. Other features of the fluid may also point to the source of the hemorrhage. Xanthochromia may accompany other morbid conditions but it is of less diagnostic import then.

148. **Operative Treatment of Pleural Empyema in Children.**—Werner reports 178 cases of pleural empyema in the last ten years. The mortality was only 11.5 per cent. in the sixty-one idiopathic cases while it was 21.1 in seventy-one following

pneumonia; 33.3 per cent. in the six measles cases, and 38.5 per cent. in the thirty-nine scarlet-fever cases. The mortality was the highest with mixed staphylococcus and streptococcus infection. In regard to age, the mortality was 28.6 and 48.1 per cent. in infants up to 1 and 2 years old; it dropped to 19.6; 11.3, and 18.2 per cent. at the ages up to 5, 10 and 15. The operation was generally resection of one rib and drainage; the mortality after this was 15.9 per cent., while it was 17.8 per cent. in twenty-eight cases in which two ribs were resected. The balance is all in favor of the lesser intervention; healing was complete in only sixteen days in one case.

Medizinische Klinik, Berlin

September 21, IX, No. 38, pp. 1525-1573 and Supplement

149 *Acute Congestion of the Liver; Three Cases. (Perakute Stauungsleber.) N. Ortner.
150 Rare Forms of Pericarditis. G. Singer.
151 *Acute Necrosis of the Pancreas. H. v. Haberer.
152 Operative Treatment of Ptosis of the Eyelid. A. Elschnig.
153 Serodiagnosis in Tabes. E. Redlich.
154 Temperature in the Aged. (Verhalten der Körpertemperatur im Greisenalter.) H. Schlesinger.
155 *Ultimate Outcome in 4,134 Cases of Syphilis. E. Mattauschek and A. Pilcz.
156 Tests of Liver Functioning. (Kombinierte Proben auf Leberinsuffizienz.) A. Oszacki and F. Wagner.
157 Secondary Routes for Perception of Sounds. (Zur Frage der sekundären Hörbahnen.) A. Kreidl.
158 Serodiagnosis in Syphilis. (Zur Kenntnis des diagnostischen Wertes der v. Dungernschen Modifikation der Wassermannschen Reaktion im Vergleich mit dem der v. Wassermannschen Originalmethode.) A. Balcarek.
159 Syphilis as Unsuspected Factor in Internal Diseases. (Eine häufige Aetiologie innerer Krankheiten.) G. Liebermeister.
160 *Summer Diarrhea of Infants. (Sommerdurchfall des Säuglings und seine Ursachen.) A. Epstein.

149. **Acute Congestion of the Liver.**—Ortner found nothing in a man of 52 to explain the recurring attacks of severe pain back of the sternum and in the upper abdomen; it suggested intermittent claudication. There was moderate dilatation of the heart and signs of chronic mild myocarditis and mild arteriosclerosis; the urine was normal. While he was still puzzling over this case another patient applied with the same clinical picture, but this one stated that his attack of pain came on after climbing a hill. Ortner then had the first patient climb the hill and this brought on the attack. Both patients recovered entirely on staying in bed for a few days. During the attack the liver was found extremely enlarged, reaching from the fifth intercostal space to the umbilicus, the mechanical conditions amply explaining the pain back of the sternum. The urine was concentrated, with considerable urobilin. The same clinical picture was soon presented by a third patient; the paroxysmal attack following the test hill-climbing was so severe that the patient went to bed without returning to report at the physician's office. The whole trouble was evidently extremely severe acute congestion in the liver, and Ortner thinks that this is a wise effort on the part of Nature to relieve the strain on the weak right heart from the physical exertion. Nature drives the blood into the liver and relieves conditions in the heart as from a venesection, giving the heart a chance to recuperate.

151. **Acute Necrosis of the Pancreas.**—Haberer emphasizes the importance of the after-care following an operation for necrosis of the pancreas, insisting that the operation itself is a minor part of the treatment. We must bear in mind that the peritoneum with acute necrosis of the pancreas is far from normal, and it cannot be entrusted with the tasks usually imposed on it under other circumstances after an operation. The tampon and the drain should be left undisturbed much longer than in other conditions. The drain must be introduced at the lowest point without fail, and be merely packed around, the ends free, not covered with the tamponing gauze. He has had seven patients with acute necrosis of the pancreas; two were not seen until the fourth or fifth day and the pulse was good and not accelerated. He consequently assumed that the heart was not suffering seriously and that the patients would pull through without an operation, which proved to be the case. He advises this expectant treatment in all such cases not seen until late, but otherwise, under all conditions he advocates prompt operative treatment as this alone offers any guarantee of safety, whether the trouble is circumscribed or diffuse. An operation is also indicated in the advanced stages as a last resort when the pulse is much accelerated, showing the severe toxic condition. He emphasizes further the necessity for examining the biliary passages in all cases of necrosis of the pancreas and, in case a tendency to cholelithiasis is evident, the suitable operation on the bile apparatus should be done without delay, restricting it to what is absolutely necessary.

He reports the case of a young woman of 25 at the fifth month of her first pregnancy who developed acute necrosis of the pancreas. She was slender, the vascular system was normal, and alcoholism and syphilis could be positively excluded. She had been previously apparently healthy except for a mild attack several years before, now retrospectively diagnosed as a gall-stone colic. The diagnosis was obscured by uncontrollable vomiting and by pains in the appendix region. The pulse was accelerated, and the sudden collapse was ascribed to perforation-peritonitis of appendicitic origin. The median laparotomy, however, revealed the acute necrosis of the pancreas, and the gall-bladder was found clogged with stones. It was removed, while the pancreas was slit its entire length, tamponed and drained. The pulse kept high for a day or so, the temperature slightly above normal for a week, but the patient made a good recovery. The last of the drains was not removed until the end of the fifth week. The pregnancy was apparently not interfered with and seems to be progressing normally, now at the seventh month. Haberer has operated in five cases of acute necrosis of the pancreas but was able to save only two of the patients. In both these cases he operated at the same time on the bile apparatus.

155. Reviewed editorially.

160. **Summer Diarrhea of Infants.**—Epstein argues that a number of causes cooperate in the production of summer diarrhea, but admits that it is possible for infants to suffer from heat-stroke the same as adults. Excessive heat not only leads to the spoiling of milk but it produces favorable conditions for infections. At the same time, his own experience has been that with good hygiene the mortality need be no higher in the heated term than at other times. In reviewing his experience he states that during the year 1880, 35.5 per cent. of the 484 children who died out of the 2,978 admitted to the old foundling hospital in his charge, succumbed to intestinal trouble. In 1900 the new building was occupied, and at once the mortality dropped. In the thirteen years since, 820 have died of the 18,311 infants admitted; 27 per cent. of the deaths occurred January to March; 31 per cent., April to June; 22 per cent., October to December, and only 20 per cent., July to September. During the intense heat of July and August. 1911, only four infants died and none from gastro-intestinal trouble; two were feeble prematurely born, one died of erysipelas and the fourth from meningitis.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXVI, No. 4, pp. 553-694. Last indexed Aug. 30, p. 719

161 *Experimental Research on Effect of Chloroform on the Liver. (Wesen der zentralen Läppchennekrose in der Leber und Rolle des Chloroforms bei dem sogen. Narkosenspättod.) F. Fischler.
162 *Various Forms of Movable Cecum. T. Hausmann.
163 Ochronosis. E. Jantke.
164 *Local Conditions Predisposing to Pulmonary Tuberculosis. (Die Entstehung der Lungenphthise auf Grund experimenteller Untersuchungen.) A. Bacmeister.
165 *Spastic Conditions in the Stomach. (Zur Pathologie und Diagnostik des Gastrospasmus.) G. Holzknecht and A. Luger.

161. **Chloroform and Other Causes of Necrosis of the Liver.**—In the opening article in this "Borderland" journal, Fischler describes experimental and clinical experiences which confirm the assumption of the close connection—actual affinity—between the liver and the pancreas; injury of the latter involves also the liver cells. The liver is evidently the place where ferments are destroyed, especially trypsin. When more than the normal proportion of trypsin gets into the bloodstream, either from overproduction or lessened destruction, there is liable to be necrosis in the central liver cells. He states that in his experiments on dogs he always used chloro-

form with a little morphin and never had any trouble until in a recent series of experiments with an Eck fistula, twelve dogs died and in each necrosis of the central liver-cells was evident. He also reports the case of a man with a lymphosarcoma originating in a retrogastric lymph-node, the growth encroaching on the pancreas and leading to fat-tissue necrosis. At necropsy the central liver cells showed the same type of necrotic lesions as had been found in the dogs. No chloroform had been given in this case. These facts and other evidence presented demonstrate, he says, that exclusion of the portal vein cannot alone be responsible for the necrosis of the liver. Also that animals with an Eck fistula are not more susceptible to chloroform than others. Also that the susceptibility for chloroform is proportional to the repeated or prolonged administration. He insists that sufficient attention has not been paid to this point hitherto, and yet injury from the chloroform predisposes the liver to necrosis, although the latter can develop without chloroform. When it occurs with chloroform, it is merely the last straw rendering manifest the injurious effect of trypsin on the parenchyma of the liver; the liver yields when the various burdens and injuries imposed on it reach a certain limit. One practical conclusion from his research is the necessity for refraining from the use of chloroform when there is the slightest suspicion of abnormal conditions in the pancreas or in the liver. He mentions with approval that the Americans refrain from giving chloroform in pregnancy, assuming that it is liable to injure the liver. Practical experience has thus preceded the theoretic bases for this. He gives the details of his experiments, with colored plates of the findings in the liver.

162. **Movable Cecum.**—Hausmann states that there are various forms of movable cecum; the mesentery may be exceptionally long or exceptionally short. There is no characteristic clinical picture even when the anomaly is causing symptoms. The pains may be in the right half of the abdomen or in the epigastrium and the trouble may be confounded with almost any affection liable to cause pain in the right half of the abdomen.

164. **Local Predisposition to Apical Processes.**—Bacmeister succeeded in inducing in young rabbits conditions analogous to the abnormally narrow upper aperture of the thorax which has been incriminated in the development of apical tuberculosis. He passed a wire loosely around the upper part of the thorax, thus binding the animal's chest as it grew and increased in size, and the condition thus produced favored the development of an apical process when the animals were infected with tubercle bacilli. The apical process developed both by blood-borne and air-borne infection but only when there was already some old tuberculous focus elsewhere in the body. It is possible that the relative immunization in this case determines the character of the apical process. His research thus confirms anew the importance of an unduly narrow upper part of the chest as a factor in apical processes. whether it is the result of anatomic narrowing of the upper aperture or of the individual's stooping attitude, from habit or from the nature of his work. Tubercle bacilli finding their way into the apex are normally swept out again by the lymph-stream; the above mechanical conditions interfere with this lymph-flushing. The lymph-passages may also be obstructed by inhaled dust, and this likewise predisposes to the development of apical tuberculosis in the shoulder-bound.

165. **Spastic Contraction of the Stomach.**—Holzknecht and Luger give illustrated descriptions of sixteen cases of this kind and expatiate on the unexpected frequency of gastrospasm and the necessity for differentiating between it and hypertonicity of the stomach, which is accompanied always by normal or increased peristalsis. With gastrospasm there is no peristalsis. Hypertonicity always affects the whole stomach, while gastrospasm may be circumscribed. as with hour-glass stomach: regional, hitherto observed only in the pyloric and middle parts: or the whole stomach may be contracted. Gastrospasm may simulate the clinical picture of an ulcer while the radiologic findings suggest cancer, especially when the spastic contraction is confined to the pyloric region, in which case it resembles remarkably a ring carcinoma in this region.

The gastrospasm always entails great disturbance in motor functioning; the stomach may be evacuated with unusual rapidity on account of insufficiency of the pylorus (principally with duodenal ulcer, caustic corrosion of the stomach and duodenum and gastric phlegmon). In other cases the pylorus may be contracted so that evacuation is impossible. This occurs principally with disease in the bile passages and with the extreme hypertonicity in morphin cases. Gastrospasm can be best studied by roentgenoscopy or endoscopy, but the only means to differentiate it is by the changes in the picture observed at different times and by the subsidence of the spasm under the influence of atropin or papaverin. In one of the cases illustrated the spasm relaxed and the roentgenoscopic findings became normal during the ten or fifteen minutes the patient was being examined; in another case the subsidence occurred as completely but more gradually. In another case the stomach appeared normal; an hour later there was total gastrospasm; and this subsided anew in another hour. In four cases the findings were entirely different on different days. In other cases the spasm relaxed under the influence of atropin. In one instance the stomach did not empty itself for twenty-four hours, but under the atropin there was no residue after two hours. As the hypomotility in this case thus changed to hypermotility, although the gastrospasm still persisted to a certain extent, it seems possible that atropin acts electively on the pylorus and thus might prove effectual in treatment of abnormally long retention in the stomach.

Münchener medizinische Wochenschrift

September 23, LX, No. 38, pp. 2097-2152

166 Experimental Atherosclerosis and Cholesterinemia. L. Wacker and W. Hueck.
167 Combined Treatment of Cancer. (Erfahrungen mit den chemisch-physikalischen Behandlungsmethoden des Krebses im Samariterhause.) R. Werner.
168 Thorium X in Internal Diseases. O. Meseth.
169 Radium and Mesothorium in Deafness and Tinnitus. Hugel.
170 *Induced Fluorescence as Aid in Radiotherapy. H. Krukenberg.
171 The Blood-Serum in Gout. R. Ehrmann and H. Wolff.
172 Collargol in Prophylaxis of Peritonitis. B. Credé.
173 Tapeworm and Appendicitis. S. Pollag.

170. **Induced Fluorescence as Aid in Radiotherapy.**—Krukenberg comments on the drawbacks of radiotherapy by the methods in vogue, especially that it is impossible to focus the rays on the actual point that needs them. Quantities of rays go astray in the adjacent tissues or are lost by the filtering required to prevent injury of sound tissues. Great advance would be realized if we could generate the therapeutic rays directly in the disease focus, and he thinks that this may be practicable. Of the substances which generate new light-rays when submitted to the action of the Roentgen or radium rays, those used in the fluorescent screen are available. Still more powerful is calcium tungstate ($CaWO_4$) which is insoluble in water, alcohol and physiologic salt solution, and thus is pharmacologically inert. Animals injected with this tungstate become luminous after exposure to the Roentgen rays. An intensively luminous spot appears in the rabbit ear after injection of a small amount of the tungstate followed by exposure to the Roentgen rays, and this spot persists brilliantly luminous for thirty days. The photograph of an animal that has been injected in this way shows an intense dark shadow at the site of the injection even as late as forty days afterward. Krukenberg injected into a mammary cancer 0.4 c.c. of calcium tungstate suspended in physiologic salt solution, after which the breast was exposed to the Roentgen rays (⅔ erythem dose) on three successive days. On the fourth day the breast was amputated. The tumor tissue showed marked processes of degeneration and necrosis in and around the point of the injection while nothing of the kind was evident elsewhere in the tumor. The intensity of the necrosis diminished with the distance from the site of the injection. Further trials of the method in rabbits with experimental tuberculosis demonstrated that the tungstate plus Roentgen-ray exposures seemed to have materially retarded the progress of the tuberculous process.

Virchows Archiv, Berlin

CCXIII, Nos. 2-3, pp. 165-572. O. Pertik Festschrift

174 Case of Dissociation of Auricular and Ventricular Function. (Kammerautomatie und Vorhofflimmern.) J. v. Angyan.
175 Subendocardial Hemorrhage. L. Aschoff.
176 The Thermoprecipitin Reaction. A. Ascoli.
177 Congenital Bullous Epidermolysis. S. C. Beck.
178 Sensitized Vaccine. A. Besredka.
179 Giant-Celled Sarcoma in Infant's Intestine. (Riesenzellsarkom im Darm eines 9 Monate alten Kindes.) Z. v. Bokay.
180 Deformity of the Kidneys in Infant. (Hochgradige Entwicklungsstörung der Nieren bei einem Neugeborenen in Verbindung mit Laryngealstenose und Verkrümmung des Unterschenkels.) K. Buday.
181 Benign Hypertrophy of the Pylorus. H. Chiari.
182 Changes in Heart Valves in 78 per cent. of Twenty-Seven Cases of Acute Infectious Diseases. L. Czirer.
183 *A Successful Anthrax Serum. (Rauschbrandserum.) L. Detre.
184 Changes in the Bones in Infectious Diseases in Children. (Veränderung der Knochen bei Infektionskrankheiten im Kindesalter.) A. Feher.
185 Histopathology of Amaurotic Idiocy. E. Frey.
186 Alcaptonuria in a Tuberculous Patient. F. v. Gebhardt.
187 Hard Subcutaneous Tumors. (Fall von Fibroma durum multiplex *petrificans*.) E. Gergö.
188 Serotherapy in Diphtheria at Budapest. S. v. Gerloczy.
189 Sympathetic Ophthalmia. (Zur Pathologie der sympathischen Augenentzündung.) W. Goldzieher.
190 Tumor in Pineal Gland. (Eine Zirbeldrüsengeschwulst.) M. Goldzieher.
191 Angiokeratoma: Four Cases. J. Guszman.
192 Foreign Body in the Kidney. (Fremdkörper in der Niere.) J. P. Haberern.
193 *Immunity to Tuberkulosis. J. Hollos.
194 Rheumatic Myocarditis. T. Huzella.
195 Affinity of Mercuric Chlorid for Bacteria and Red Blood-Corpuscles. (Zur Sublimat-Affinität.) L. Kalledey.
196 Benzol in Polycythemia. G. Kiralyfi.
197 Latent Pulmonary Tuberculosis. J. Kovacs.
198 Structure of Lipoid Cells. (Ueber pigmentierte Netze und Kristallimitationen in Lipoidzellen.) E. Krompecher.
199 Pathology of Tuberculosis. O. Lubarsch.
200 Importance of Early Operation for Cholecystitis. (Frühoperation bei Gallenblasenentzündungen.) E. Makai.
201 Urobilinogenuria in Diagnosis. B. Molnar.
202 Source of Origin of Staphylococcus Agglutinins and Opsonins in the Connective Tissue E. Neuber.
203 Aneurysm of Ascending Aorta of Mycotic-Embolic-Thrombotic Origin. E. Neuber.
204 Tumor in Fourth Ventricle. E. Nobel.
205 Movements of the Vocal Cords. (Ueber die konträren Bewegungen der Stimmbänder.) A. Onodi.
206 Decreased Acidity of the Urine in Tuberculosis. T. Pertik.
207 *The Wertheim Operation for Uterine Cancer. (Heilung des Gebärmutterkrebses mittels der Wertheimschen Operation.) E. Petö.
208 Sartorius Flap to Close Inguinal Hernia. E. Polya.
209 Scarlet Fever Almost Invariably a Mixed Infection. K. Preisich.
210 Share of Influenza Bacillus in Disease of the Urogenital Apparatus. D. Raskay.
211 Action of Thorium-X on the Respiratory Metabolism. N. Roth and J. v. Benczur.
212 Structure of the Intima in Atherosclerosis. S. Rusznyak.
213 Actinomycosis of the Liver. J. C. Seenger.
214 The Normal Qualitative Blood-Picture. A. v. Torday.
215 The So-Called Hypertrophic Pulmonary Osteo-Arthropathy. J. Vas.
216 Intravertebral Neurodermoid Cyst. T. v. Verebely.
217 Histology of Gliomas. D. Veszpremi.
218 Injuries to the Blood-Vessels of the Kidney. C. Vidakovich.

183. A Serum for Anthrax.—Detre announces the production of a *successful curative serum* for symptomatic anthrax obtained by immunizing a horse with cultures of the bacilli. Details of the development and use of the serum are given. The serum seems to be strongly bactericidal and contains agglutinins which agglutinate anthrax bacilli in very minute dilutions. This specific agglutinating power can be utilized in identifying the bacilli of symptomatic anthrax.

193. Immunity to Tuberculosis.—Hollos believes that, contrary to the *generally* accepted opinion, the children of the tuberculous inherit a certain degree of immunity. Children of tuberculous parents are more frequently affected than children of healthy parents simply because they are so much subjected to infection. Individuals are especially disposed to tuberculosis if their body cells are incapable of the production of immune bodies, and this is noticeably true of the children of alcoholics. *Symptoms of intoxication* show that the patient is capable of reacting and are also a measure of his sensitiveness to the toxin. When the organism ceases to react with such symptoms the prognosis is unfavorable. The more sensitive the patient is, the smaller must be the dosage of either tuberculin or immune bodies and the longer the interval between doses. If a patient under treatment who has not shown *symptoms of intoxication* begins to show them, this is evidence that the effort to arouse immunity is successful and that the organism is beginning to react, thus making the prognosis more favorable.

207. Wertheim's Operation for Uterine Cancer.—A table is given showing the clinical symptoms, microscopic findings and results in 100 cases of uterine cancer in which the operation was done by Wertheim's method. Two were cancer of the body of the uterus. *One of these has had* no recurrence for twenty-one months to date. The other has not been heard from. Of the carcinomas of the cervix, twenty-seven were mild and seventy-one severe cases. The primary mortality was fourteen; ten of the patients are in good health after *five* years; *fifteen* after three or four years and three after one or two years. Recurrence followed in twenty-three cases; thirteen have died since without local recurrence and there is no report from twenty.

Wiener klinische Wochenschrift, Vienna

September 25, XXVI, No. 39, pp. 1521-1600

219 Chlorosis and the Gastro-Intestinal Tract. (Ueber Anämien.) E. v. Neusser.
220 Experimental Research on Immunization Against Diphtheria. (Ueber die Immunisierung gegen Diphtherie mit Toxin-*Antitoxingemischen nach von Behring.*) A. Schattenfroh.
221 Influence of Anesthetics on Mouse Tumors. (Wirkung von Morphin, Kokain und Schleichscher Lösung auf das Wachstum der transplantablen Mäusetumoren.) G. Joannovics.
222 *Radium Treatment of Cancer. W. Latzko and H. Schüller.
223 Allergy to Non-Proteins. R. Hift.
224 Experimental Syphilis in the Rabbit. L. Arzt and W. Kerl.
225 *Chemical Action* of the Becquerel Rays. A. Fernau and M. Schramek.
226 Salvarsan in Abortive Treatment of Syphilis. R. Frühwald.
227 Albuminuria Induced by Test Lordosis as Sign of Tuberculosis. N. v. Jagic.
228 **Ingestion of Bile as Remedy for Gastric Hyperacidity.* (Eine neue Therapie der Hyperazidität des Magens, insbes. bei ulzerösen Prozessen.) K. Glaessner.
229 Importance of the Anesthesia for the Course of a Laparotomy. H. Finsterer.
230 Stab-Wound of Aorta. (Retrograde Embolie in die Arteria fossae Sylvii, ausgehend von einem Thrombus der Aorta *descendens, nach einer Stichverletzung der letzteren.*) H. Körbl.
231 Removal of Bullets from Region of Gasserian Ganglion. P. R. v. Walzel.
232 Case of Pregnancy Hypertrophy of the Breasts and Accessory Mammary Glands. S. Erdheim.
233 Medical Inspection of Schools. (Zur Schularztfrage.) L. Teleky.
234 *Operative Treatment for Defective Thyroid Functioning. (Chirurgische Behandlung des Hypothyreoidismus.) W. v. Jauregg.

222. Radium in Treatment of Cancer.—Latzko and Schüller describe with a colored plate of the findings seven cancer cases in which radium treatment was applied. The results, they state, justify the conclusion that if the exposures are made with all the precautions learned from the general experience with radiotherapy to date, the *radium therapy* is an inestimable advance in the treatment of malignant disease. Operable cancers should be excised, but in the inoperable cases, radium is liable to improve conditions to an extent hitherto considered impossible, bordering close on an actual cure. This result can be realized, however, only with the longest possible applications of the *largest possible* doses. The tissues after the exposures show the same changes as after corresponding Roentgen-ray or mesothorium exposures.

228. Bile in Direct Treatment of Gastric Ulcer and Hyperacidity.—The idea occurred to Glaessner that the benefit from a gastro-enterostomy may be due in part to the bile which finds its way into the *stomach through* the *artificial* opening. Experiments with bile and gastric juice both in the clinic, in the test-tube and on animals, confirmed this assumption. He found that the acidity of the gastric juice is modified by the bile and that it neutralizes the pepsin and thus *inhibits* the corrosive action of the gastric juice on a *gastric* ulcer. He gives the details of thirty-three *cases of* various stomach affections in which he administered small amounts of cholic acid as the equivalent of bile, from 0.4 to 0.6 c.c. of cholic acid. He generally *gave* it in the form of an emulsion of 0.2 gm. sodium cholate in 0.2 gm. oil, enclosed in a *gelatin* capsule, the patient taking from two to five of the capsules. Or he used in each capsule 0.1 gm. cholic acid or 0.2 gm. sodium cholate. Marked benefit was realized in a number of cases; in some the pathologic condition was transformed and the patients seem to be now permanently cured of their old stomach trouble connected with the hyperacidity.

234. **Operative Treatment of Thyroid Insufficiency.**—Von Jauregg says of thyroid grafting that this method of treating hypothyroidism has no present and has little if any future. But he relates a number of significant clinical and experimental facts which suggest the possibility that an operation on the thyroid—even when it is not enlarged—might have an influence on the functioning of the gland, diverting it into a more normal course. He thinks the method is worth a trial in myxedema with goiter, in endemic cretinism and infantile myxedema. If the thyroid is enlarged, part of it might be resected; if not, the isthmus might be severed, or both might be done in endemic cretinism as with this the isthmus portion of the thyroid is the part generally enlarged. Among the experiences related to sustain this suggestion is Poncet's success with exothyropexy in the case of a girl of 14 with typical myxedema. Her physical growth was scarcely that of a child of 8, and the mental development below this. The thyroid was abnormally small and he lifted it out of its bed and kept it exposed for a time, covered only with gauze. The wound was allowed to heal up after a month or so and the child developed much better afterward, the mental condition materially improving. This was also observed in Neudorfer's case, a complete transformation in character and in mental and physical development following an operation on a goiter in a youth of 19 extremely backward in both body and mind; similar benefit had followed an operation on a brother for goiter. Cathcart has also reported the subsidence of myxedema after partial thyroidectomy in a woman with a goiter. Von Jauregg has also observed a complete transformation after a partial operation on the thyroid gland in two dogs with pronounced cretinism and goiter.

Zeitschrift für Kinderheilkunde, Berlin

VIII, No. 6, pp. 443-527. Last indexed Oct. 18, p. 1498

235 Unusual Case of Hysteria in a Child. I. Engel.
236 *Recovery from Leishman's Anemia. G. Caronia.
237 No Specific Skin Reaction in Eczematous Children. (Ueber Hautreaktionen bei gesunden und ekzematösen Kindern.) F. Mautner.
238 *Causes of Psychic Abnormalities of Children. (Ueber die endogenen und exogenen Wurzeln der Dissozialität Jugendlicher.) E. Lazar.

236. **Recovery from Leishman's Anemia.**—Leishman's anemia has been regarded by most authors as an incurable disease. Caronia gives case-histories of eight recoveries, and cites six others, making fourteen in all. He believes, however, that the recoveries were due to natural immunity and the vitality of the organism rather than to any specific treatment. Various methods of treatment were used, the most effective being arsenical preparations, including salvarsan and cacodylate of iron.

238. **Causes of Abnormal Psychic States in Children.**—Lazar describes cases of various forms of abnormal tendencies in children, such as violence, sexual perversion, pyromania, exalted and depressed emotional states and criminal activities of different kinds. These may be the result of congenital predisposition or the expression of mental or nervous disease. But the fact should not be overlooked that even such abnormal tendencies may be overcome in many cases by bringing the child up in the proper environment. Treatment should be directed to early detection of the abnormal predisposition and to prevention of its development by rational training.

Zeitschrift für Urologie, Berlin

September, VII, No. 9, pp. 705-784

239 *Vaccine Therapy in Infectious Disease of the Urinary Passages. O. Wulff.
240 Advantages of Electrolysis in Treatment of Bladder Papillomas. R. Oppenheimer.
241 Egyptian Hematuria in Babylon. P. Richter.

239. **Vaccine Therapy in Urology.**—Wulff writes from the surgical clinic at Copenhagen in charge of Rovsing to laud the efficacy of autogenous vaccines in treatment of affections of the urinary passages. One hundred patients were given this treatment but only those of whom accurate and prolonged records were kept are discussed here. In one group of twenty-three patients the trouble began suddenly with pains in the loins, high fever, sometimes chills or pyuria. In the majority there had been recurring attacks like this for some time before the vaccine therapy had been applied. The acute febrile attack was arrested at one stroke by the vaccine, and the tendency to recurrence was cured at the same time. Wulff explains these cases as the result of some infectious focus outside of the urinary passages; when the bacteria from this focus get into the blood-stream from any cause this brings on the acute attack as the bacteria reach the kidneys and set up trouble there. After the invasion of the blood-stream ceases, the kidney trouble lets up, either healing completely or lapsing into a latent phase to flare up anew with new reenforcements of bacteria. The vaccine therapy puts an end to this, either by destroying the primary focus or by modifying the system in such a way that it is able to resist the bacterial invasion. He has had similar experiences with vaccine therapy of typhoid, but he has not been able to find in the literature any account of similar experiences with the prophylactic-curative action of vaccine therapy with infection of the urinary passages. The cure seems to be complete in twenty-one of the twenty-three patients in this group although their urinary trouble was of many years' standing in a number. In two of the cases the patients had recurrence of the trouble later, but in a much milder form and the tendency gradually abated entirely, the final effect thus being the same in all. In one streptococci had been found; in all the other cases the colon bacillus was responsible for the infection. This group included also four cases of pregnancy pyelonephritis. In two of the twenty-three cases, however, no effect from the vaccine therapy was apparent; the recurrence in these cases was always coincident with the onset of menstruation but no gynecologic affection could be discovered.

In a group of nineteen patients with a more chronic infectious trouble of the urinary passages, all were improved or cured but one. Albumin and pus disappeared from the urine but bacteriuria sometimes persisted. In the cases with kidney calculi or an infected wandering kidney, the outcome was, naturally, less favorable; only 53 per cent. of the seventeen patients in these classes were improved or cured. Excluding these groups, Wulff had 91 per cent. cured or materially improved of the other forty-six patients, while in a parallel group of forty patients treated with the ordinary measures, without the vaccine, only sixteen out of forty were materially benefited.

Albumin was found in the urine in 76 per cent. of the total patients before the vaccine therapy and the proportion dropped to 28 per cent. afterward; pyuria dropped from 100 per cent. to 41 per cent., but bacteriuria dropped from 100 per cent. only to 71 per cent.—showing that the effect of the vaccine therapy is less marked on bacteriuria than on the presence of albumin and pus in the urine. The opsonin index was repeatedly tested but was not found a reliable guide in any way in these urologic affections.

Zentralblatt für Chirurgie, Leipsic

September 27, XL, No. 39, pp. 1513-1544

242 Local Action of Novocain Enhanced by Potassium Sulphate. (Potenzierung der örtlichen Novokainwirkung durch Kaliumsulfat.) H. Braun.
243 Subserous Drainage of Cystic Duct after Simple Cholecystectomy. H. Flörcken.

Zentralblatt für Gynäkologie, Leipsic

September 27, XXXVII, No. 39, pp. 1429-1468

244 *Prophylaxis of Puerperal Fever. (Verhütung der durch Spontaninfektion verursachten Wochenbettfieber.) P. Zweifel.

244. **Prevention of Puerperal Fever.**—Zweifel states that at the gynecology clinic in his charge at Leipsic he has succeeded in materially reducing the number of cases of puerperal fever, and he ascribes this success to his method of wiping out with a dry sponge the clots left in the rear of the vagina and rinsing out the vagina with a fluid which restores the element lacking in pathologic vaginal secretions. This lacking element, he says, is lactic acid; it occurs in

the form of free acid in the normal vaginal secretions, to a maximum of 5 per thousand. With normal secretions and boiled water rinsing the vagina through a Fergusson speculum, the fluid is whitish, while there is a yellow tint when the secretion is pathologic. It is thus possible at a glance to distinguish the pathologic cases and commence the lactic-acid rinsing out of the vagina. He keeps up the prophylactic irrigation once a day for at least ten days. This lactic-acid method has been applied since 1909 to all pregnant women near term with a pathologic yellowish secretion, and the morbidity has dropped from 28.6 per cent. to 7.6 per cent. As nothing has been changed in the methods of procedure during this period except adding the prophylactic lactic-acid douche, the testimony speaks strongly in favor of the measure. He orders 100 c.c. each of (fermentation) lactic acid and of distilled water; 10 c.c. of the mixture to 1 liter of water gives the correct dilution of 5 per thousand. He suggests that as the lactic-acid douches have proved their usefulness, it might be well to introduce them generally without regard to pathologic conditions or not, just as the measures for prophylaxis of ophthalmia neonatorum are applied to all indiscriminately. This is the more rational as the 5 per thousand lactic-acid solution can never do harm. He warns against the danger of full baths just before delivery, and describes some cases in which severe puerperal fever followed for which no cause could be discovered except the penetration of the bath-water into the vagina. In one such case a woman took a bath in her boarding-house after the membranes had ruptured, just before entering the maternity, and severe puerperal fever followed, lasting for several months before the final recovery; no internal examination was made in this case and the perineum had been supported only with gloved hands wound with a cloth dipped in mercuric chlorid solution.

Zentralblatt für innere Medizin, Leipsic

September 27, XXXIV, No. 39, pp. 977-1000

245 Origin of Gout. (Experimenteller Beitrag zum Verständnis der Gichtpathologie.) R. Bass.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 21, XXXIV, No. 113, pp. 1175-1190

246 Unusual Types of Malaria; Four Cases. (Febbri comitate.) T. Pepe.

September 23, No. 114, pp. 1191-1198

247 Temporary Intubation to Cure Disease of Lacrimal Sac. (Nuovo metodo di dacriocistorinostomia.) R. Casali.

September 25, No. 115, pp. 1199-1206

248 Tubercle Bacilli Only Rarely to Be Found in the Blood. (Ricerche ed osservazioni sulla bacillemia tubercolare.) E. Arleti.

Policlinico, Rome

September 21, XX, No. 38, pp. 1361-1396

249 *Hemostasis in Operating on the Liver. (Nuovo metodo di emostasi definitiva del fegato.) O. Tenani.
250 Therapeutic Pneumothorax for Out-Patients. (Sull'applicazione ambulatoria del metodo Forlanini nella cura della tubercolosi polmonare.) L. Cherubini.

249. Hemostasis in Operations on the Liver.—Tenani calls attention to the effectual prevention of any bleeding in resection of the liver by the technic he has worked out. His experiments were done on dogs and rabbits, and the results amply confirm the advantages of the technic for clinical use. He braids together four or five catgut threads, size 3 or 4, weaving them just loose enough to permit a needle threaded with catgut to be worked through at various points. The liver exposed, he cuts two strips of the braided catgut to correspond to the width of the liver where it is to be resected. One of the strips of braided catgut is laid across the top and the other across the bottom of the liver, just beyond where it is to be resected, and an assistant holds the four ends, thus drawing the strands of catgut taut across the liver above and below. The needle threaded with catgut is then passed through the lower strand, up through the liver tissue, and is drawn out through the upper strand. This is repeated at intervals of half a centimeter across the whole width of the liver; the loose ends are held two by two with forceps until all the loops are in place, when the two ends are knotted together over the support of the catgut braid both on the upper and under aspect of the liver. The organ is then cut across and there is no hemorrhage from the cut surface, nothing to require even the least tamponing. The catgut braid strips are left undisturbed and they gradually become absorbed without causing any disturbance. He drew the omentum down to cover the raw surface in his experiments, and he thinks this is an excellent adjuvant measure, as also his practice of injecting a small amount, not over 5 or 8 c.c., of liquid petrolatum. When the animals were killed the raw surface of the liver was found entirely healed with no trace of bleeding or infection. The petrolatum tends to prevent the development of adhesions while it is not a culture medium for germs like olive oil or similar substances, and it has no irritating action on the peritoneum.

Riforma Medica, Naples

September 20, XXIX, No. 38, pp. 1037-1064

251 Experimental Arteriosclerosis. (Ricerche sperimentali sulla genesi dell'ateroma aortico e sulle alterazioni del miocardio da esso dipendenti.) C. B. Farmachidis. Commenced in No. 37.

Brazil-Medico, Rio de Janeiro

September 8, XXVII, No. 34, pp. 356-365

252 Passage of Evans' Trypanosome through Guinea-Pig Conjunctiva. A. Neiva.
253 Prophylaxis of Venereal Disease. W. Machado.

Semana Medica, Buenos Aires

August 28, XX, No. 35, pp. 457-516

254 The Liver with Appendicitis. (El higado apendicular.) E. L. de Gomara.

September 4, No. 36, pp. 517-568

255 Hypophysis Extract and Epinephrin in Ophthalmology. R. Argañaraz.
256 Strophanthin in Cardiovascular Disease. (Estrofantinoterapia.) M. R. Castex.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 6, II, No. 10, pp. 729-816

257 *Scarlet Fever. (Roodvonk.) P. H. Kramer.
258 Early Operation in Appendicitis. C. Metzlar.
259 Case of Idiosyncrasy to Aspirin. (Overgevoeligheid voor acid. acetylosalicylicum en aspirin.) M. Jacobs.

257. Scarlet Fever.—Kramer reviews his experience at the Rotterdam contagious disease hospital with 910 cases of scarlet fever in the last four years. He states that in the last four months of 1912 there were 2,411 cases of scarlet fever at Amsterdam, with eleven deaths, while during the same period there were 358 cases at Rotterdam, with twenty-one deaths, the mortality thus being respectively 0.46 and 5.87 per cent. There was complicating otitis in 8.6 per cent. of his total 910 cases, and nephritis in 7.7 per cent. The diazo reaction was not found reliable in differentiation. In 2.1 per cent. of the cases the disease returned or relapsed, once during the second week after supposed recovery and in three, seven and five cases in the third, fourth or sixth week. Thirty-one "return cases" are reported. In five instances the scarlet fever developed after an operation, but in no case did the eruption appear first around the wound. One woman developed scarlet fever the tenth day after delivery; no source of contagion could be discovered. Kramer states in conclusion that he found epinephrin very useful in tiding the patients past the danger point when the adrenals seem to be suffering acutely from the infectious-toxic process. The most serious symptoms observed in the syndrome he attributes to the lack of the normal adrenal secretion, and he gives epinephrin to combat this. Camphorated oil, also, alone or in combination with the epinephrin, proved surprisingly effectual in some of the more serious cases. He does not give any details as to his dosage or technic with either the epinephrin or the camphorated oil.

Medizinskoe Obozrienie, Moscow

LXXIX, No. 11, pp. 905-1000

260 Intradermal Tuberculin Test in Diagnosis of Tuberculosis Applied to 160 Children. S. L. Zvenigorodski.
261 Hodgkin's Disease in Boy of 8. A. A. Koltinin.
262 Tubal Pregnancy. (O chirurgitcheskom lietchenie vnematotchnoi beremennosti.) A. L. Borissoff.
263 Cesarean Section; Thirty Cases. A. N. Rachmanoff.
264 Simple and Inexpensive Bouillon Culture Medium. (Prigotovlenia miaso-peptonnago bouillona po Prof. Hottinger'y.) A. Sineff.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXI, No. 19 Chicago, Illinois November 8, 1913

NEURASTHENIA AN INCREASED SUSCEPTIBILITY TO EMOTION *

HOWELL T. PERSHING, M.D., LL.D.
DENVER

The neurasthenic is always with us, appealing to our sympathy, knowledge and skill to restore him to comfort and usefulness. His sufferings, however he may exaggerate and distort them, are only too real; his disability is often most serious. We are eager to help him, but his symptoms do not yield to the treatment which would relieve similar symptoms due to other causes, while the indications for general treatment are often vague and uncertain. If we knew the fundamental nature of neurasthenia and could direct all our treatment toward its correction, surely we could do better.

For more than twenty years a large proportion of my daily work has been with neurasthenic patients. The aggregate number of cases has been large, certainly more than a thousand, and each case has been carefully examined and studied, and the results have been recorded, in an effort to ascertain the causes and true nature of the disorder. I have not used the method of psychanalysis but I have made a special effort to encourage and assist each patient in telling his hidden causes of worry and fear. I wish to state certain conclusions from my experience which seem to me to be of great practical importance in making treatment more definite and more successful.

As the term "neurasthenia" has been used to denote nervous conditions accompanying very different diseases, it is necessary to define the class of cases to be discussed. Nervousness that is incidental to organic disease of the nervous system, or to an infection such as influenza, typhoid fever or tuberculosis, or to painful local disease, such as gastric ulcer or cystitis, should not be described as neurasthenia; there may be a neurasthenic condition but its importance is secondary to that of the major disease. If after the original disease is cured, however, a neurasthenic condition persists, it is to be regarded as a true neurasthenia. On the other hand, various effects of true neurasthenia must not be mistaken for the original cause. Disorders of digestion, of circulation, of vision, of micturition and of the sexual functions are often mistaken, by both patient and physician, for the original cause, when they are really only a part of the consequences of neurasthenia. A delimitation is also necessary on the side of the purely functional nervous diseases. The patient with incipient melancholia, paranoia or dementia praecox is often superficially neurasthenic, but the underlying condition is different in kind. Hysteric patients are generally neurasthenic, but their emotional crises are of a different type and they suffer also from suggestibility and restriction of the field of consciousness, causing paralyses, spasms, anesthesias or other stigmata not found in neurasthenia.

Neurasthenia, then, is a functional nervous disorder, not dependent on organic disease of any kind, not amounting to insanity, not hysteria, manifested by irritability, early onset of mental fatigue and a great variety of unpleasant and to the patient alarming sensations, chiefly in the head but also in various other parts of the body.

When we study these cases as to etiology, the idea of fatigue, especially mental fatigue, is forced on us. The patient's own story is usually clear on this point. Overwork in college, perhaps two years in one, or a full schedule of studies along with the struggle for self-support, is a common explanation. A merchant or professional man has worked long hours for years without a vacation; a mother has nursed an invalid child while carrying the burden of household cares, and so on. In a smaller proportion of cases without history of previous overwork, an illness, injury or mental shock seems to have caused the neurasthenic condition; but even here the condition, *once established*, is described as chronic fatigue; the patient has no relish for his work, cannot stand exertion, is always tired. Indeed, the existence and causal relation of fatigue generally appear so obvious as almost to justify the banal prescription, "You must drop everything and get away" (in Colorado it is "You must drop everything and get to a lower altitude"), a prescription by no means easy to take, although easily given, happily freeing the prescriber from troublesome care or the admission that there is anything beyond his scope.

A critical examination of the facts, however, will soon show that work and its consequent fatigue cannot be the fundamental factors in causation. When circumstances are favorable, the neurasthenic can often do a large amount of physical or purely intellectual work and actually be the better for it. Dr. Hall of Marblehead, Mass., successfully carries on a work cure for neurasthenics. Moreover, patients are commonly worse on Sundays or other holidays, and are often worse in the morning than in the evening. Of those who completely give up work only a small number seem to profit. Some are temporarily improved but relapse on returning to the usual conditions; many grow worse and worse the less work they do. Even rigorous rest in seclusion often fails and is sure to fail unless the doctor and nurse do far more than relieve the patient of exertion by ministering to his physical wants. The average neurasthenic does not get rested whether he works or is idle. Why not? Because his feelings of exhaustion were originally caused and are still maintained, not by work, but by emotion.

---

* Chairman's Address before the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

The essential fact about neurasthenics is that they suffer a far greater number of emotional disturbances of the harmful kind than average persons in similar situations. They are incessantly being annoyed, grieved and frightened. It is not that their emotions are extraordinarily intense; their greatest anger is mild compared with the savage rage of an alcoholic; their depression is not to be compared with the despair of melancholia; they are incapable of the passionate contortions of major hysteria; but innumerable, constantly recurring occasions, which would be of trifling moment to a normal individual, cause reactions of anger, fear or grief such as would be appropriate only to the few occasions which are really significant. The condition is like anaphylaxis. That part of the cortex in which emotional processes start has become sensitized so that perceptions or ideas, such as might occur in the normal brain with little or even no appreciable effect, excite a storm of outgoing currents to disturb and disorder all the functions of the body. This oversensitive condition of the emotional apparatus may also be described in the technical language of physiology as a lowering of the emotional threshold.

JAMES-LANGE THEORY OF EMOTIONS

The significance of this aspect of neurasthenia becomes clear when it is viewed in the light of the James-Lange theory of the emotions. Observation and reflection extending over many years have convinced me that, for the practical neurologist, it is a true theory, although the pure psychologist may be doubtful about some of its implications. According to this theory every emotion consists of three processes whose order is invariable.

1. The occurrence of the exciting perception or idea.
2. An action of the brain, excited by this perception or idea, which sends efferent nerve-currents to the organs throughout the body, causing a change in the action of the organs.
3. The return of sensory nerve-currents from the disturbed organs to the sensory areas of the cortex, causing a change in the sensations and a consequent perception of the bodily disturbance.

Take as a simple example the case of a person startled by sudden noise. The first stage is simply the perception of the sound; the second is the jerking of voluntary muscles, the involuntary cry, the sudden catch in the breath, and the jump of the heart; the third is the disagreeable sensations caused by these sudden changes in the body. In such cases the bodily effects and consequent unpleasant sensations are generally greatly in excess of what one would expect from the loudness of the sound. They may sometimes be useful in enabling one to escape from a sudden danger, but are generally quite useless and their exhausting effect is far greater, the duration of activity being considered, than that of any kind of work whatever. So it is with the various phases of anger, grief and fear in the neurasthenic. The exciting idea is generally not such as one would expect to have a marked effect, but it starts an emotional process whose second stage involves, directly or indirectly, every muscle-fiber and gland in the body, changing motion, respiration, circulation and secretion, while the third stage includes bad feelings which further alarm and depress. Biologically this disproportion of effect to apparent cause is explainable by the fact that the emotions are largely identical with the preservative and protective instincts, for which there is a predeveloped inherited mechanism, which normally in case of danger causes prompt and vigorous action toward escape, defense or attack, without waiting for reason to give its sanction. In modern life this mechanism is seldom useful, while its needless action, if frequently repeated, is always harmful. It is this primitive, inherited, powerful reflex mechanism which has become oversensitive and excessively active in neurasthenia.

NEURASTHENIA AND PSYCHASTHENIA

Apply these considerations to a typical case of neurasthenia and it is readily explained. Work may have something to do with it, for all work involves fatigue, and it is not to be denied that normal fatigue due to normal work tends to lower the threshold of the undesirable emotions and to inhibit the desirable ones. The effect of work alone is normally slight, however, and is quickly recovered from; a night's, or at most a few days' rest would insure recovery if the work were the only unfavorable factor; but along with the work are occasions for vexation, anxiety and alarm. The neurasthenic through heredity, disease or traumatism has a brain which reacts excessively to these occasions; to the moderate fatigue of useful labor is added the great fatigue of useless emotion; the neurons whose efferent impulses disturb the body become more sensitive, lowering the threshold still further; thus the daily number of emotional disturbances increases. The sensory centers of the cortex in which the emotion ends become more and more fatigued, so the resulting sensations become more and more unpleasant. This change in sensations, especially in those of the head, causes a feeling of changed personality which is strongly suggestive of mental disease, and thus the earlier fears of heart-disease, apoplexy or what not become relatively unimportant before the terrible fear of insanity.

Psychasthenia is also a lowering of the emotional threshold. Its difference from ordinary neurasthenia is in the nature of the exciting cause of the emotional disturbance. In ordinary neurasthenia the exciting causes are the exceedingly frequent occasions of grief, fear and anger, which are perfectly real but so slight that only the abnormally sensitive brain is harmfully affected by them. In psychasthenia the exciting cause of disturbance is merely the mental representation of a cause for emotion which for the patient does not exist at all, but which would be amply sufficient to affect a normal brain if it did exist.

Thus a psychasthenic girl passing a house sees some glasses of jelly exposed on a window-sill. The thought comes, "Some one might put poison into that jelly; what if I should do it?" The mere thought provokes such a feeling of horror that she goes home crying. A few weeks later, she takes part in a cooking-school exercise and is vividly reminded of the ideas concerning the jelly, but keeps control until one of the children who has eaten what she helped to prepare begins to complain of illness. Then the mere idea, which she knows to be utterly false, of having put poison into the food provokes a violent outburst of grief. All normal persons have some emotional reaction to mental representations which they know to be purely imaginary, as in reading fiction or seeing a play. Hamlet comments beautifully on the tears of the player who has been reciting the anguish of Hecuba:

When she saw Pyrrhus make malicious sport
In mincing with his sword her husband's limbs, . . .:

Is it not monstrous, that this player here,
But in a fiction, in a dream of passion,
Could force his soul so to his own conceit
That from her working, all his visage wann'd;
Tears in his eyes, distraction in's aspect,
A broken voice, and his whole function suiting
With forms to his conceit? And all for nothing!
For Hecuba!
What's Hecuba to him, or he to Hecuba,
That he should weep for her?

With normal persons, however, the knowledge that the conceit is imaginary always limits the intensity and duration of the emotional reaction. The theater-goer, the novel-reader, the day-dreamer may really tremble, shed real tears, or contract his muscles in righteous anger, but he restrains himself and quickly recovers emotional equilibrium. Not so the psychasthenic. His emotional centers are so oversensitive that a purely accidental image of himself as suffering a violent death, committing a dreadful crime or being insane arouses an intense horror. The intensity of the experience fixes it in memory; it becomes associated with almost everything, and the harmful emotion becomes habitual. The important fact in such a case is not the nature of the idea, or how it came into consciousness, or whether or not it has been repressed into the cellar of subconsciousness; these may have some importance; but the great fact is the physical condition of the cortex which permits such excessive and uncontrolled reactions.

TREATMENT

Whether the patient is simply neurasthenic or also psychasthenic, each excessive emotional reaction leaves a condition of instability which is a predisposing cause of the next disturbance; thus the disease perpetuates itself and he is caught in a vicious circle of cause and effect. How can he get out of it? Only by such measures as will temporarily lessen the number and the intensity of the emotional reactions and permanently change the condition of the cortex so as to raise the emotional threshold. The success of any of the innumerable remedies proposed is in proportion to the fulfilment of this indication, and this explains why apparently the same method is a brilliant success in the hands of one man and a total failure with others.

The founder of the rest-cure has always had a most extraordinary genius for reforming the emotional life of his patients. Those who employ what they conceive to be his method without some spark of this genius fail utterly and even make their patients worse. So it is with diet. Enough good food, preferably at short intervals, is essential; but it would be better for most neurasthenics confidently and cheerfully to commit all the dietetic sins possible at an average table than to eat in doubt and fear only the ideally perfect combination of foods. The same principle applies to work, exercise, travel, amusements and reading. They will be beneficial if they conduce to confidence and serenity, but harmful if they cause anxiety, fear or irritation.

The task of reforming the patient's emotional habits and restoring a normal balance and control in his cortex is both difficult and complicated. Every bodily or mental change in the patient has some direct or indirect influence which is favorable or unfavorable, but we must select such a combination of the possible favorable influences as will lead to success and at the same time prevent the unfavorable ones as best we may.

I find it convenient to analyze the problem of treatment as follows: 1. What can the physician do to influence favorably the patient's ideas, and thus control his emotions? This includes everything ordinarily denoted by explanation, suggestion and persuasion. 2. What can the patient be taught to do for himself in happily guiding his own mental processes? 3. What can the patient do in training his body to avoid injurious emotional reactions and favor the desirable ones? 4. What can be done by medicines and other agencies to improve the physical condition of the emotional centers.

1. *Influence of the Physician.*—Much may be done to displace false and depressing ideas by those that are encouraging and tranquilizing. This part of the treatment begins when the patient enters the waiting-room. No pictures of the dissecting-room or sick-bed, no specimens or surgical instruments should be there; all the furniture and decorations should be suggestive of comfort and peace. It seems trite to speak of the physician's attitude toward the nervous invalid, of the need of an interested, sympathetic, patient, confident manner. Yet only a few seem to realize how the patient is influenced by it. Something like "the insolence of office" is easily acquired in hospital and dispensary work; neurasthenics are trying patients and the physician easily slips into an attitude of indifference or exasperation. It is difficult to exaggerate the advantage of putting the patient at his ease in the very beginning and making it easy for him to tell his troubles and their real or imaginary causes.

In the anamnesis all the causes of fear and worry should be brought to light, not to magnify but to minimize their importance. I do not believe that these are concealed from the patient himself, but that through fear or diffidence he may conceal them from the doctor, and this is always an obstacle to success. Sexual troubles, whether real or imaginary, should be faced in order to remove them or to show how unimportant they are. The fear of insanity should always be uncovered and then lightly explained as one of the ordinary and almost inevitable symptoms of neurasthenia which does not indicate any real danger and is sure to disappear.

Then comes the physical examination, so careful and complete that the patient feels sure nothing could be overlooked, with reassuring words here and there as one organ after another is found to be sound. In summing up, much satisfaction should be expressed at finding the nervous machinery intact and ready to work well. It may be compared to a good automobile which needs only an adjustment of the spark or carburetor to make it work perfectly, or to an erratic watch which will keep accurate time when the balance-wheel is demagnetized. There must be no hedging in giving a favorable prognosis, but it should be understood that time is necessary to a cure and that after considerable improvement an apparent relapse is sure to occur, which, however, will be only slight and transient if the patient follows directions. The special examinations and reassurances must be patiently repeated as occasions arise. When the patient comes back discouraged and argues that he is no better and that his case is more serious than at first supposed, he really wants to be shown that he is wrong and hopes that the doctor will encourage him. In such cases a gain of a pound or two in weight or any other favorable indication may be quite sufficient to put him again on the right track. To agree with him or to be angry at his foolishness is to lose a golden opportunity.

2. *The Patient's Control over Emotions.*—The patient must be taught to avoid the occasions for unfavorable emotions. He is to shun all controversies, conversations about health or disease and writings on medicine or hygiene whether good or bad. He must absolutely cease studying his own case. His greatest difficulty will be in attempting to control his own trains of thought, especially when morbid sensations suggest them. To this end all harmless measures of diversion are to be cultivated, including both work and play. If reading has been abandoned it is to be resumed, for short periods at first, in spite of apparent bad effects which are due to fear. The patient must treasure up agreeable things to think about and be ready to take refuge in such thoughts whenever his bad feelings are most troublesome and other diversions are impracticable. In directing this part of the treatment a physician can utilize all that he knows of life in both sexes, at different ages and in the various classes.

3. *Physical Control by the Patient.*—With all possible care, nevertheless, there will be a residue of unavoidable exciting causes of harmful emotions. What can be done to minimize their effects? Each emotion disturbs internal organs which are beyond direct voluntary control, but it also has characteristic effects on posture, movement, expression of face, respiration and voice, all of which are more or less under voluntary control. By sufficient exercise of will on the part of the patient, therefore, an emotion, although already started, can be changed. Thus with a clear idea of what he wants to do the neurasthenic can substitute relaxation for tension, full regular breathing for irregular gasps, the expression of deliberate ease for that of anxious hurry, and an agreeable response for a sharp retort. In doing this he makes a great change in the sensations which constitute the third stage of the emotion; he to a considerable extent substitutes the sensations of courage for those of fear, of good humor for those of anger, and so on. But this is not all, the internal organs not under direct control of the will are favorably affected indirectly; thus, regular breathing tends to slow and steady the palpitating heart. It is by this process that we learn to overcome the habit of crying in childhood, that we are cured of stage-fright and that we learn to face trying situations of any kind. Note that it is a process, not merely of repression, but of intelligent substitution which can become habitual and be made to prevent even the violent paroxysms of major hysteria. The patient should be drilled especially in correct breathing, so that when he is threatened with a disturbance he can apply the remedy. Then let him start each day with the pious intention to show no fear or vexation in word or expression, still less in action, to make his breathing regular whenever it is disturbed and to keep his voice agreeably modulated and low pitched.

4. *The Use of Drugs.*—Application of the foregoing principles will greatly help all neurasthenics and for some it alone will be sufficient. We have patients, however, who, in spite of all explanations and encouragement, of all possible shelter from occasions for emotion and of honest attempts to practice the expression of repose, serenity and courage, are still habitually fatigued by emotional disturbances. The emotional centers are chronically irritable. They will gradually improve under the plan already indicated and whatever improves general health will help, but the process is slow In the meantime is there nothing to soothe these irritable centers and so enable the patient to prevent far more of the emotional reactions then he otherwise could? If you can assure him that there is, he will follow your directions with confidence and be more likely to succeed in the mental and bodily training.

The striking effect of certain chemical agents on emotions leads us to believe that in principle, at least, the emotions can be controlled chemically. Witness the depressing effect of the toxins of influenza and typhoid, the soothing effect of opium, and tobacco, the cheer of coffee and the positive exhilaration of alcohol and various ethers. Alcohol would be a priceless boon if its good effects could be secured and sustained without any disadvantage. It is a pity that its bad effects are so great and so certain. Tobacco and coffee may do some good without serious disadvantage, and I think it a mistake to forbid them to a neurasthenic already accustomed to them; but their good effect is not very great. Bromids, so valuable in epilepsy and so much used in various forms of nervousness, seem to me to make neurasthenia worse. The known relation of the internal secretions to emotion, of the thyroid substance to fear, of the testicular and ovarian substances to amorous feeling, and of the pituitary and possibly the pineal bodies to the sexual glands, warrants the hope that remedies of this kind may be of great use; but so far it is only occasionally that they are of service.

The one remedy whose effect is specific, highly beneficial and capable of being sustained without necessarily involving any serious disadvantage is opium. Far be it from me to encourage its needless or reckless use, but neurasthenia is a source of much unhappiness, often exhausting our resources to the uttermost. If it could be cured by a major surgical operation, the attendant danger of mutilation or death would not prevent the operation from being welcomed by many physicians and many patients. It is not wise to reject the most valuable drug now available, provided skill and care can make it safe. Surgeons do not limit themselves to blunt instruments because sharp ones are capable of doing harm, nor do they reject an operation because an unskilful or careless operator would make it a disaster. The following precautions must be taken: 1. Administration is to be only at regular times, never hypodermically but preferably in a capsule, allowing the patient no discretion to increase the frequency of the dose. 2. Other remedies should be combined with it, particularly strychnin and laxatives which will make trouble if the patient exceeds directions. 3. Every prescription should be for a limited number of doses and should carry a prohibition, printed or written in ink, against refilling without special permission. 4. The doses should be small at first, say 0.006 gm. (1/10 grain) of the extract of opium four times a day, and should be cautiously increased, always kept the smallest that will permit a fair degree of progress and later gradually *diminished.*

Used with these precautions, opium lessens irritability, fear and despondency in neurasthenia, just as it lessens cough and pain in other diseases, and by permitting emotional rest it gives the exhausted nerve-centers a chance to recuperate and greatly aids the patient in forming the correct emotional habits which he is being taught. I am sure that I have succeeded with it in many cases in which without it the difficulties would have been too great; I have never known a drug habit to follow its use in this way, nor have I had any difficulty in discontinuing it when it seemed best to do so. The dose need not be large; most patients do best when the maximum dose reached does not exceed 0.02 gm. or 1/3 grain of the extract. Only in a few desperate cases have I reached the larger doses such as would be suitable in melancholia, sometimes being rewarded by complete success, sometimes failing.

I know that many will think that in this discussion of neurasthenia I have treated slightingly or altogether omitted the most important factors, such as digestive disorders, ocular defects, defective elimination, pelvic diseases, sexual errors and so on. Any one of these factors may be of great importance on its own account or as a complication, but so far as the neurasthenia is concerned I regard them as secondary or incidental, one might almost say accidental. They have been disregarded in order to show more clearly and in their true proportions the essentials of neurasthenia.

Stedman Building.

ABSTRACT OF DISCUSSION

Dr. A. A. Brill, New York: Dr. Pershing is trying to reduce the conception of neurasthenia to some definite symptom-complex. He seemed, however, in the course of his discussion, to take in conditions which go beyond the scope of the definition with which he started. For instance, despondency and depression do not necessarily belong to neurasthenia, unless we take neurasthenia to include almost anything. I was especially interested in the statement that the symptom of fatigue in neurasthenics is more pronounced in the morning. In my own experience I have found that neurasthenics usually feel much better in the morning and become more and more fatigued as the day advances. On the other hand, patients with depression of the manic depressive type usually feel much fatigued in the morning and, as the day goes on, the fatigue wears off. I should be interested to hear some discussion on this point. If time permits, I should like to hear discussed the James-Lange theory as applied by Dr. Pershing to neurasthenia, which I must say I cannot accept. I was pleased to hear that Dr. Pershing included the mental element in the treatment, for to me psychic treatment is most important in neurasthenia. I would caution against the use of morphin in neurasthenics. I never use it in any of my cases.

Dr. Joseph M. Aikin, Omaha: I want to endorse Dr. Pershing's statement with reference to the symptoms of early morning fatigue. Until recent years I regarded that as more particularly a part of the clinical picture of melancholia, in which the depression is so much greater in the early morning than in the later hours of the day. I have, however, in the last three or four years been able to verify the particular symptom of which Dr. Pershing speaks. I am especially pleased that Dr. Pershing does not endorse the use of the bromids in neurasthenia. I have tried them out pretty thoroughly, and do not approve of their use in neurasthenics. Dr. Pershing also voices my experience in rejecting any form of opium whatsoever in these cases. I do not use a hypodermic on a neurasthenic, for any opiate at least, and I avoid, if possible, its employment for any drug whatsoever. There is something in the needle habit that we ought to avoid, even though there be nothing but distilled water in the syringe. What Dr. Pershing presented with reference to laxatives is in line with my experience in the treatment of neurasthenic cases. The less we prescribe laxative medicines or any drugs in the treatment of neurasthenics, the better our results. Intelligent direction as to quality, quantity, time and manner of taking food will give the patient more relief than drugs. If we can get these patients to eat a good variety of food and forget what they are eating, the necessity for laxatives will soon disappear.

Dr. L. Harrison Mettler, Chicago: If we are going to limit the term "neurasthenia" to mere psychic reaction of the emotional type, Dr. Pershing's presentation of the management of neurasthenia is most careful and practical. I am not ready, however, to accept the idea that all of the cases that I have minutely examined and conscientiously denominated neurasthenia are altogether psychic in character, the expression of merely an exalted affective psychosis. Remembering the elaborate and painstaking experiments of Hodge, Vas, Mann, and others in the laboratory, I have remarked a close similarity between the symptomatic revelations in the animals experimented on and the patients in whom I have made the diagnosis of neurasthenia. It is impossible for me to believe that emotional feeling is the basis of these animalistic revelations, as I am asked to believe that they are in the human being. Again, I have always noticed that in the incipiency of almost every infectious disease, long before the disease can be positively and definitely diagnosed, the clinical picture bears a remarkable similarity to that of the fatigue neurosis which we have been wont to call neurasthenia. Here I assume that the trouble is assuredly greater than a mere hyperemotionalism.

To sustain his position, Dr. Pershing adopts the James-Lange theory of emotion, wherein the feeling is said to follow, and not to precede, the cardiac, vasomotor and other disturbances. This theory I have never been able to accept. It is incomprehensible to me that a horrible sight, for instance, should cause the vasomotor apparatus to be disturbed and that this disturbance then causes the feeling of horror. The basis of the horror is not the mere thing looked at, but the ideas springing out of it. Without these ideas the sight would be wholly neutral and awaken no emotion. Once awakened, the emotion in its force and suddenness stirs the cerebral centers, and these reflect their disturbance on all of the organs of the body.

The James-Lange theory might apply in a way to the emotional states of neurasthenia as of any other disease. Abnormal conditions of the body always affect more or less the patient's mental state, but this is not what I understand that these authors intended to convey in their explanation of the emotions. At all events, if I am wrong about this, this application of the theory upholds my contention that neurasthenia is something more than a mere psychosis. I find the psychosis to be the result of some organic disturbance within the body in most of my neurasthenic patients. Psychotherapy alone, useful as it is in hysteria and other pure psychoneuroses, does not help me in the management of neurasthenics. I find that I have to resort to hygienic, physical and medicinal measures of all sorts to restore the patient's bodily health; then the mental state improves *pari passu*.

Dr. D'Orsay Hecht, Chicago: Although I am fully in accord with many of the views expressed by Dr. Pershing in his address, I must confess that I was anticipating something a little different in the attitude toward the general broad conception of neurasthenia as a disease entity. I had hoped to hear an expression of the same regret that I have felt for so long, that we, as neurologists, had too tenaciously clung to the view of neurasthenia as a distinct clinical condition. I, for one, am interested in the passing of neurasthenia as a disease *per se* in the sense in which Beard put it forth. I would even venture to add that, in my opinion, the whole tradition of neurasthenia as a primary condition of irritable weakness should have perished long before ever it was well on its way in medical literature. I have come to believe that in practically all instances of so-called neurasthenia a careful physical examination will reveal underlying pathology, perhaps not obvious pathology, but enough of organic change, however latent or subtle, to render the fatigue phenomenon explicable. If we look at neurasthenic individuals, moreover, as sick primarily in their bodies and not in their minds or their "nerves," we shall have gone far toward a better understanding of an asthenic symptom-complex. Hitherto we have put too much stress on the emotional values in these cases, and have seriously confounded them with the psychoneuroses, with which, I believe, they have little or nothing in common. I sometimes wonder if we are sufficiently careful to determine a small half-hidden focus of tuberculosis, which a tuberculin reaction might reveal. Again, I wonder if polyglandular insufficiencies are sufficiently appreciated to be held accountable for a fatigue syndrome. I wonder whether the rôle of faulty metabolism is well enough understood to be thought of in this same connection. Surely our increasing refinement in the field of serum and vaccine therapy should pave the way not alone for greater accuracy in diagnosis, but also for better success in the *treatment* of these patients, with their reduced vitalities, chronic, vague pains, nervous irritability and other evidences too familiar to recount. It is the physical diagnosis that I regard as important in the type of cases to which we refer, and the more keenly that we regard arteriosclerosis, latent tuberculosis and low grades of sepsis from one source or another, and what, for lack of a better term, we may call the toxemias of polyglandular origin, the less will be our provocation for making the diagnosis of neurasthenia.

Dr. Howell T. Pershing, Denver: I admit that any definition of neurasthenia is only approximate. I must also confess that I have occasionally made the mistake of regarding incipient melancholia, exophthalmic goiter or pulmonary tuberculosis as neurasthenia. As time has gone on, however, and I have done my best to perfect my diagnostic methods, so as to exclude all such conditions, there still remains a large number of cases of what in our present state of knowledge can be called only neurasthenia. Even the finding of some organic lesion does not forthwith exclude neurasthenia. There is a neurasthenic type of patient, with slight organic disease, who is quite different from the average patient with the same disease; the emotional disturbance is so out of proportion to the physical disorder that the neurasthenic condition must be dealt with on its own account.

I admit, of course, that neurasthenia, once established, has a physical basis in the oversensitive cortical centers, and that this may be aggravated by many morbid conditions in various parts of the body; but the essence of my contention is that exciting causes, which we are in the habit of regarding as purely mental, have far-reaching bodily effects, which not only aggravate but also originate and perpetuate the neurasthenic condition. That mere perceptions, mere ideas (the physical basis of which is purely cortical), do produce extensive and profound bodily effects is a matter of commonsense observation. Else, why should a piece of bad news cause sobs, tears, tremor, palpitation, arrest of digestion and loss of weight? Let us by all means study the physical condition of the patient from every point of view and improve it to the utmost. If we narrow our vision to the physical side, however, and do not improve the patient's mental habits we fail. In a case of nervous, that is neurasthenic, dyspepsia, you may wash the stomach, make the diet perfect and give any or all of the aids to digestion, with the result that the patient is still a dyspeptic and may be even worse. Leave the stomach alone, correct the emotional habits and you cure him.

PROGRESS IN PUBLIC HEALTH WORK *

GUY L. KIEFER, A.M., M.D., D.P.H.

DETROIT

The science of medicine has advanced more rapidly than any of its sister sciences. It is equally true that the science of hygiene has made more rapid strides forward than any of the other branches of medicine. Bacteriology and sanitary engineering have had much to do with the great progress of public health work. Most of the advancement has taken place in the past twenty-five years and its pace has quickened constantly during that period. Practical public health work, particularly as applied to municipalities, has undergone such a change that even to one intimately associated with it, the change is almost incredible. Let us take as a theme the analysis of the organization of a public health department and its work as it existed twelve years ago in comparison with the same organization and work to-day.

In 1901, on July 1, the board of health of a city at that time having approximately three hundred thousand inhabitants had a list of employees numbering twenty-four, and an appropriation to be expended in the work of $31,352. On July 1 of this year, the same department in the same city, which to-day has a population of something over five hundred thousand people, numbers its employees at 189, and has an appropriation of approximately $240,000.

The activities engaged in by the twenty-four employees of twelve years ago may properly be divided into the following subdepartments, or subheads:

1. An executive department manned by a health officer and a secretary.
2. A department of vital statistics, consisting of a registrar, one clerk and one night clerk.
3. A department of contagious diseases, consisting of two medical inspectors, two quarantine inspectors, a disinfector and a hospital for the isolation of small-pox patients only.
4. A laboratory in which a single chemist and bacteriologist was employed.
5. A department of milk and food inspection, consisting of two milk inspectors and two meat inspectors.
6. A plumbing and sanitary department, consisting of a chief plumbing inspector, five additional plumbing inspectors, one garbage inspector and one clerk.

All of these departments are still in existence, but have been so much enlarged that they can hardly be recognized. Besides the changes made in these existing departments, however, four new subdivisions have been added, as follows: a housing department, a smoke inspection department, a child welfare department and a department of publicity and public instruction.

It will be interesting now to discuss for a few moments the various departments as they exist to-day in comparison with formerly.

The executive department still has at its head a health officer, who is assisted by a secretary, a clerk and a stenographer.

The department of vital statistics, which is the backbone of every modern and up-to-date bureau of health, has had added to it a vital statistician and an assistant vital statistician. The duties of these officials are too well known to the members of this Section to need further comment. Allow me to say, however, that the board of health here described as it existed twelve years ago did not differ materially from many other similar departments, and that the registrar in the department of vital statistics was expected to keep records of births, deaths, contagious diseases and of everything recorded by that department, save possibly the issuing of certified copies of burial permits and other purely mechanical work of this kind. It occurs to me, and I feel that it should be emphasized here, that the first position to be established in the health board of a small city, or even of a rural community, after the appointment of the health officer, is that of vital statistician. Without careful bookkeeping of births and deaths, without careful accounting of the cases of contagious diseases, the work of the department must necessarily be handicapped.

The largest department in the number of employees and in the scope of its work is the division of contagious diseases, which has grown from a small beginning—the chief duty of which was to place placards and quarantine guards on houses wherein were cases of small-pox, scarlet fever and diphtheria—to a department, the duties of which are so manifold that they are difficult to enumerate and some of which should be grouped under the child welfare department. This department employs four medical inspectors, one chief medical inspector of schools aided by thirty physicians, eleven dentists, of whom four are inspectors and seven are operators, and twenty-seven nurses. Fifteen of these nurses are engaged in medical inspection of schools in the winter, and, to some extent during that period, they give attention to the prevention of infant mortality. During the summer months they devote all of their time to the latter activity, and twelve of them look after the houses in which there are contagious diseases, seeing to it that persons in such houses are properly instructed in the prevention of the spread of the given disease. These nurses take the place of the former quarantine inspector and disinfector, because they are much better able than that officer was to inspect the premises and to disinfect them when necessary, and above all, because they know how to give instruction in the prevention of disease. A number of clinics are included under this head, many of which are for the purpose of giving relief and aid to schoolchildren in whom physical defects of various kinds have been found, and to whose parents the correction of these defects has been recommended. There are five dental clinics, one nose and throat clinic, one eye and ear clinic, one children's tuberculosis clinic, besides a general tuberculosis clinic, a mothers' clinic, the object of which is the prevention of infant mortality, and a venereal disease clinic.

---

* Chairman's Address before the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Many health departments have under their supervision some sort of place usually designated by the public as a pest-house for the reception and care of small-pox; such an institution was maintained twelve years ago, and about six years ago a tuberculosis sanatorium was begun by the erection and maintenance of a small tent-house for the care of two patients. Since that time the sanatorium has been gradually increased until now it has accommodations for eighty-five patients. During the last five years the construction of a beautiful modern pavilion hospital for contagious diseases was started. At present there are completed and occupied, an administration building, a pavilion for forty cases of scarlet fever, and a similar one of equal capacity for diphtheria patients. Under course of construction are two additional buildings, one of which will accommodate at least fifty cases of venereal disease, and the other thirty cases of measles and twenty cases of various other contagious diseases in separate isolation compartments. Money is also available at present for the enlargement of the scarlet fever pavilion so that it may accommodate fifty additional cases of the diseases, and after the completion of all of these additions to the new buildings, together with the tuberculosis sanatorium and small-pox hospital, there will be a capacity of nearly three hundred and fifty beds.

The laboratory has had to be increased to meet the demands of the other departments. The chemist and bacteriologist originally in charge of this work has become the director of laboratories and there are two men busily engaged as his assistants, one of whom devotes almost his entire time to the analytic work that needs to be done in connection with the present department of milk inspection.

The division of milk and food inspection, which twelve years ago was manned by two milk inspectors and two meat inspectors, now consists of a chief dairy and milk inspector, ten assistant inspectors, one clerk and the two original meat inspectors. The change from "milk inspector" to "dairy and milk inspector" is not merely a change in name. In the early years the work done by these men consisted largely in the collection of samples from milk-wagons, many of them being dipped from the old-fashioned milk receptacles from which the retail peddler sold his milk. The necessity of such wagon inspection no longer exists because milk can be sold according to the improved regulation only in bottles. The collection of samples for analyzing has therefore been considerably simplified, and it takes the time of only one or two men to collect sufficient samples to keep track of the distribution of milk, especially since most of the work is done on the dairy farm. Inspections are made throughout the entire year of all of the farms from which milk is sent to the city, and the score card of the United States Department of Agriculture, Dairy Division, is used for this purpose. Whenever a farm is scored, a duplicate of the findings is left with the dairyman, so that he can readily see in which direction improvement is most necessary. A minimum score is required of him, and in this way the quality of the milk coming to the city has been much improved.

Meat inspection has remained to a great extent at a standstill because the solution of this problem is in the establishment of a central abattoir, in my judgment, owned by the city, and until this can be had, meat inspection cannot be made ideal, but must be continued because of the fact that some inspection, even though recognized to be imperfect, is better than none.

The department of plumbing inspection has grown so that now it has on its pay-roll a sanitary engineer, nine plumbing inspectors and two clerks. This department endeavors to pass on plans, so far as plumbing and drainage are concerned, of all new buildings, and to have the plumbing of these buildings inspected when it is installed, and reinspected when the fixtures are placed. Besides this the plumbing inspectors endeavor to look up all complaints of insanitary conditions due to old and imperfect plumbing, and have them corrected.

The housing department is the first of the new divisions and consists of a chief housing inspector and eight assistant inspectors. It is impossible in a discussion of so broad a subject to dwell at length on the necessity for this new activity. On the correction of housing conditions in any city depends to a large extent the reduction of its cases of sickness and its number of deaths. The plain object of such a department is to see that people have better houses in which to live, with more light and improved ventilation, and that they are taught how to keep such premises sanitary after they have been provided. Overcrowding of houses, and particularly overcrowding of sleeping-apartments, is one of the great causes of sickness and one that can be overcome only by a constant campaign of education, kept up by a large number of vigilant and intelligent housing inspectors; that the number employed by this department of the board of health is altogether too small is conceded, but some progress has been made in its growth from nothing to an inspection force employing nine men, and certain it is that the need of improvement of housing conditions has been recognized.

The smoke inspection department is manned by a smoke inspector and one assistant, who endeavor to prevent the emission of unnecessary clouds of black and dark-brown smoke from the chimneys, particularly of industrial institutions. It has been argued in the past that the cessation of smoke means the closing of factories and the lack of prosperity, but it has since been proved that factories of nearly every description can manufacture their goods in just as large quantities without smoke, certainly without so much smoke as to be a nuisance, as they can by the belching forth of quantities of thick, black, unconsumed carbon.

The child welfare department is made up of some of the activities that I have already enumerated under the head of contagious diseases, which should be classed separately. The medical inspection of schools, together with the dental inspection, the nurses that have to do with this work and with the prevention of infant mortality, the little mothers' league classes in the schools, the school-children's clinics, and the mothers' clinic, really constitute the department of child welfare.

Last in the enumeration of the new subdivisions I have placed the department of publicity and public instruction, and this from the point of view of its importance should be placed first. Public health work has come to be recognized as a campaign of education, and the more thoroughly such a campaign can be carried on, the better will be the results. The mere enactment of state laws and city ordinances of various kinds and the attempt at their enforcement with a big stick are methods of the past, and the instruction of the public in matters of public health and preventive medicine has taken their place. This department publishes a bulletin for the board of health, which gives the physician and public such instruction as is considered of the greatest value. It is allowable and quite customary to use the public press as extensively as it will lend itself to this purpose. Public addresses should be made, and are made by the various members of the staff, and in this city for the most part by the health officer. That this department is one of importance is seen by the fact that the American Medical Association has established a speakers' bureau, the object of which is to give the public anywhere instruction in preventive medicine and public hygiene. The calls for such instruction are becoming more frequent, and speakers are asked for all over the country. The result of such work is apparent, inasmuch as it can be readily seen that the public will give their cooperation to the enforcement of sanitary regulations much more readily if they understand them than if they are simply expected blindly to obey the law. In speaking of the department of publicity and public instruction, which has become a necessary adjunct in every bureau of health, I cannot help saying a few words about the public health nurse. Public speeches which are made at the request of a medical society, a civic organization, or a woman's club are of advantage in this work, but they do not compare with the good results to be obtained from the house-to-house inspection which is given by the public health nurse to the people who most need it. Persons of this class are not seeking this instruction and do not care for it, but it is brought to them into their homes, and by one thoroughly competent and one who gains their confidence. Were the attempt made to have physicians instruct persons, particularly mothers and fathers, or any adults, in private houses in the prevention of disease, it would be thought, even in this day of advanced preventive medicine, that the doctor was going beyond his sphere; in most cases he is still called to administer to the sick, and if possible restore them to health, and the instruction as to the prevention of the disease from which the patient is suffering must be left to some one else. This some one else is the public health nurse. Her activities should not be limited to the rendering of assistance to the medical inspectors of schools, to the instruction of mothers in the care of babies for the prevention of infant mortality or even to the instruction in the prevention of tuberculosis. There is no reason why the public health nurse cannot as well visit houses in which there are cases of other contagious diseases, for example, scarlet fever, diphtheria, etc. With our convictions that these diseases are spread by contact, either directly or indirectly, we have abandoned the old theory that it might be dangerous to have a nurse visit these homes for fear of spreading the disease; by giving the intelligent care to her hands and her clothing that she knows how to give, all danger is removed, and her work of instruction may be carried on so that it will reach all classes of cases. It has even been suggested—and the suggestion, in my judgment, is a good one—that the work of the public health nurse should be extended to include housing and sanitary inspection. In some of the smaller cities in Michigan, she has been clothed with the authority of sanitary officer and policeman, and the results obtained by her work have been excellent. This, of course, is again because she instructs first, and, only when absolutely necessary, prosecutes afterward.

Let us look for a moment at some of the results obtained in the work accomplished by a larger and improved health department in the city about which I am writing and see whether or not it pays. Taking from our mortality table the figures of some of the more important causes of death, we find that the mortality-rate from all causes for 1901 was 15.05 per thousand; for 1912 it was 15.42. The death-rate from scarlet fever was 24.3 per hundred thousand for the former year and 11.4 for the latter. For diphtheria, the comparison is 39 and 37; for tuberculosis 124 and 98; for typhoid 20 and 18.8. The only column in which we find an increase in the death-rate is under deaths from all causes, and yet when we consider the growth of the city and figure out the many additional reasons for deaths from all causes in a large city as compared with a smaller one, it will be seen that the actual increase is very slight. In each of the diseases mentioned, there is a decrease in the mortality-rate, and when we figure the actual number of lives represented by the difference in the mortality per thousand, we find that from these four causes alone, 212 lives were saved.

In comparing the infant mortality for 1901 with that for 1912, we are handicapped because births were not reported until a later date, or at least not universally reported, and, therefore, we can base the mortality of infants only on the deaths from all causes, and we find even with this improper method of calculation that for the former year 27.05 per cent. of the deaths from all causes were in infants under 1 year of age, and for the latter year only 25.6 per cent. Taking the infant mortality tables for 1906, the first year during which births were regularly and universally reported (because of the fact that the law imposed a penalty for failure to report and paid a stipend for the report), and basing the number of deaths on the number of births reported, and then comparing them with the same figures for 1912, we find that in 1906, 7,752 births were reported and 1,679 deaths, giving an infant mortality-rate of 216.5, whereas for 1912, the number of births was 15,252, the number of deaths 1,998, an infant mortality-rate of 131. In other words, had the death of infants continued for 1912 at the 1906 rate, there would have been 3,358 such deaths instead of 1,998, and the number of babies saved in the latter year over and above the 1906 rate is the difference between these figures, or 1,360. There can be no doubt that the progress made in public health work has been considerable and that money expended to keep pace with this progress is worth while.

233 Antoine Street.

EXPERIENCES OF A HEALTH OFFICER IN PORTO RICO *

ELMER F. OTIS, M.D.
PEÑUELAS, P. R.

William H. Taft, while President of the United States, once said:

> We have ground for national pride in the fact that England, France, Germany (not so much so) and Holland have been engaged in colonial business in the tropics for a hundred years, some of them for two hundred years; and yet it remained for American physicians (especially of the Army) to discover more things in ten years than were discovered in the whole two centuries before that time.

Porto Rico has been able to contribute a portion to the advancement along these lines. While the island was under military rule an example was given of what might be accomplished by organized effort. We are not to be surprised, therefore, that when civil government was first granted the sanitary work was instituted. It was not until two years ago the first of July that the service was organized as a separate department—with a former Army medical officer, Dr. W. F. Lippitt, at the head. At the next meeting of the insular legislature it was reorganized until it now compares favorably with those of the highest standard. At still the next meeting of the legislature, the past winter, the work was enlarged so as to include not only the campaigns against typhoid, tuberculosis, hookworm and mosquitoes, but an institute of tropical medicine was started. The purpose of this new law is to provide thorough instruction for the employees of the sanitary service, and also to educate and enlighten the masses.

A hospital for the care of contagious diseases and those who are suffering from special affections will be erected in each of the seven districts of the island. Health officials and insular doctors will be invited to come to these centers for demonstrations. It is also planned to give special courses in tropical medicine to these men and also to doctors from all over the world who may desire to study these diseases clinically.

The sanitary work is devoted to the following general lines:

1. Routine office duties.
2. Educational efforts.
3. Special campaigns against prevailing diseases, such as tuberculosis, uncinariasis, malaria and epidemics.
4. The Institute of Tropical Medicine.

In addition to the activities of the sanitary department, special mention might be given of the noble work being done by our *liga antituberculosis* in its persistent efforts against the white plague. The government authorities and best medical men are intimately associated with and second the efforts of its energetic officers.

The sanitary department, after summarily obliterating the plague conditions, at once began to wage a campaign against mosquitoes, even though yellow fever has never invaded our coasts since the American occupation. Malaria in certain districts of the island has been more than troublesome, however, and there is already a noticeable decrease in the number of mosquitoes.

Rat-proofing operations have been pushed throughout the several municipalities during the past year. Constant vigilance is exercised in order that we may not be surprised by an epidemic being brought to us, in case some other government may endeavor to hide the real conditions in order that its commercial relations may not be disturbed.

Antityphoid vaccinations are freely administered in every part of the island; while antirabic serums are given on the slightest possibility of the development of hydrophobia. Antidiphtheritic, antitetanic and antistreptococcic serums are available and freely used by physicians.

A special food and drug inspection department is one of our active agents for the safeguarding of the health and lives of the people. Almost daily confiscation of suspicious articles is reported. These articles are then sent to the special laboratory for analysis. Tons of spoiling or infected foodstuffs are sometimes refused a landing. Thus many deaths from toxemias due to poisonous foods have been eliminated. An annoying example of food adulteration was the placing of nitrobenzene in peanut oil as a flavoring, which resulted in sickness and some fatality.

ANEMIA WORK

Efforts against uncinariasis have occupied the attention of our leading men from the start. It can be truly said that, aside from pulmonary tuberculosis, there is probably no one thing that so stubbornly resists all medical efforts as the treatment of the hookworm anemics. The organization and results are effective; but the masses have not yet been able to see the necessity for putting forth the extra effort required, strikingly similar to experiences in tuberculous work.

Thus it is that, whereas at first almost every one was infected with worms, now about half of the inhabitants have been released by persistent medication and care. This simply shows what results may be accomplished in time if the efforts are well organized and the work is pressed forward. In my series of cases recently taken from children of the schools located in varying degrees of altitude and atmospheric humidity, it was revealed that the infection ranged from 13 per cent. in the low, dry barrios to 60 per cent. in the moist coffee plantations on the mountain sides.

SPECIAL EXAMINATION OF SCHOOLCHILDREN

Probably the next problem that will be taken up by the sanitary department will be that of the schoolchildren—the generation of the future. Already orders have been issued from headquarters instructing every health official to make a special study into the physical status of each child, especially as relates to the problem of anemia. While planning this work, I conceived the idea of broadening the scope so as to include a study as to the physical efficiency and defects of each pupil, since these strikingly affect their mental capacities. Accordingly, the study outlined as to the condition of each individual pupil examined was personally made—whether found in the town or the almost inaccessible country schools of the mountain region. By the use of the zero, minus, plus or double-plus signs, a fairly accurate representation of the physical findings was obtained in as short a time as necessary. They were taken in the following order, in tabulated form: age, sex, color, robustness, adenoid tissue, tonsil hyperplasia, teeth, vision, cataract, trachoma, pallor, percentage hemoglobin and examination of feces for ova of *Ankylostoma, Ascaris, Trichocephalus* and sundry other infestations. The observations outlined may be noted in the accompanying tabulation, while the details will be left to a fuller report after the work has been more thoroughly worked out.

---

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

PEÑUELAS SCHOOLCHILDREN

Total enrolment	1,134
Number examined	1,044
School sessions:	
Rural	18
City (town)	8
Percentage feces infested with hookworm ova	38
Maximum infested in one school	60
Minimum infested in one school	13
Percentage infested with other parasites	72
Maximum infested in one school	89
Minimum infested in one school	52
Average percentage of children showing evident pallor	54
Average percentage hemoglobin	81.5
Maximum hemoglobin	92
Minimum hemoglobin	35
Percentage defective teeth	67.5
Percentage tonsils and adenoids	84

Suffice it to say that one is strongly impressed at the overwhelming percentage of eggs found (other than those of hookworm); and that they seem to bear a certain relation to the uncinariasis and also to the degree of pallor. The large percentage of *Ascaris* is closely followed by that of *Trichocephalus.* Then came tapeworms, pinworms, distomas, flukes and amebas at times. One cannot but wonder if, after all, the worms represented by the large number of eggs that are to be found do not have a harmful influence, if only by their presence. It is not an unheard-of thing for an infant to pass a mass of roundworms as large as one's two fists, wriggling, squirming worms.

It has been well said, "It is readily conceivable that the animal parasites also may secrete [and I may also add "excrete"] toxic or otherwise active substances which are not without moment to their hosts." An important contribution on this subject was made by Dr. Flury. He has shown that "the tissues and excreta of these worms contain numerous compounds capable of inducing local hyperemia, inflammation and necrosis." Some of these extractives also produce a hemolytic action. This may perhaps help to explain why the color does not always quickly return when the ankylostomas are thoroughly expelled from the intestine.

YELLOW FEVER

Mention was made of our active campaign against the mosquito in order to prevent the possible invasion of yellow fever. The history of sanitation under our military government in Cuba was striking. Deaths from malaria dropped from 350 to 10 annually. At the same time the yellow fever did not so respond; and the natives began to talk of the superiority of their customs over the newly imported ideas on sanitation of the "Americanos." As soon as a certain mosquito, however, was discovered to be the carrier of the infection, the whole matter promptly terminated. In Panama, under military control, like results were obtained, but much more quickly.

The relative efficiency of the purely military to the civil form of government in sanitary matters is striking in those tropical possessions where the combination of determining factors is so diversified. It is generally conceded that the results obtained in every community from special sanitary work have been due to the fact that the authorities were given "a free hand"; this is in proportion to the extent that the leaders in the government think as medical men, and it is influenced in proportion to the political bias of those in power. Hence, the results accomplished under any civil government will be relatively slow as compared with those under military rule. It is indeed well that our government made its "records" before the Canal Zone is placed under civil rule. What was accomplished in three months in the Canal Zone (the eradication of yellow fever) it took three years to accomplish under the military protectorate of Cuba. Likewise a proportionately longer time will have to elapse before the "popular sentiment" of the Porto Ricans can be aroused to a realization of the importance of quarantine and rigid sanitation—although surprising results have already been accomplished for the amount of effort put forth.

While we feel thankful for the results already accomplished in Porto Rico, still we may expect even greater gains when we are assisted by the latest organization of the department and the beneficial effects of the Institute of Tropical Medicine, with its hospitals.

ABSTRACT OF DISCUSSION

Dr. J. W. Trask, Washington, D. C.: In studying the prevalence of diseases we are at times apt to overlook the fact that the number of deaths registered may in no wise show the prevalence of a disease; nor, for that matter, its real importance as a public-health problem. Take as an illustration malaria in the continental United States. The registration of deaths from this disease is in many localities quite undependable. In one state there were twelve deaths registered during a certain year. It developed, as a result of considerable correspondence, that in all probability not one of the twelve deaths had been due to malaria. The same thing is, in some measure, true in many other diseases. Often we cannot tell from the registered deaths the prevalence of a disease. Another illustration of this, familiar to you all, is small-pox as it exists in this country. It has of late years been a common experience to have recorded in the neighborhood of seventy-five or one hundred deaths from small-pox during the year. If we were to attempt to ascertain the prevalence of the disease from the mortality record it would be necessary to assume a known case fatality-rate, and if we took the rate which is common in most parts of the world, namely, 15 or 16 per cent., we should come to the conclusion that there had been in the country five or six hundred cases of small-pox, whereas, from the reports of cases we know that there had been from thirty to fifty thousand cases at least, and that the fatality-rate had been much below 1 per cent., and in some states as low as one-fifth of 1 per cent. We also get into difficulties and arrive at incorrect conclusions if we assume that we can take this general fatality-rate of, say, one-half of 1 per cent. as a basis to estimate the prevalence of the disease from the recorded deaths.

We know the fatality-rate of comparatively few diseases, and the probabilities are that in comparatively few diseases is there such a thing as a definite fatality-rate. The fatality-rates of many diseases vary with the season or locality and sometimes with the outbreak or other conditions not as yet known.

The registration of deaths is a necessity, for many and sufficient reasons, in every self-respecting community, but the prevalence of most diseases can be shown only by the recording of the occurrence of cases, for the occurrence of cases, not the deaths, shows the occurrence of the disease.

Dr. E. F. Otis, Peñuelas, Porto Rico: This question is a very important one to us; and for that reason we are trying. so far as possible, to get our laboratory to examine the patients before they die and to know in the central office what the diagnosis is—how many typhoids are found in a certain epidemic, and more especially, how many actual cases of malaria are found in a certain district by the microscopic findings of the blood-smears. Stress should be laid on the fact that in order to get results we must educate the people so that they may cooperate with us in our efforts to bring about sanitary reforms; because sanitation under legal pressure is slow and hard work. This is in contradistinction to sanitation under a military régime, so beautifully illustrated in the Canal Zone.

URETEROVESICAL CYSTS

AN OPERATIVE PROCEDURE FOR THEIR RELIEF *

JOHN R. CAULK, A.M., M.D.
ST. LOUIS

Ureterovesical cysts, cystic dilatations of the lower ureter or intravesical ballooning, a lesion, which in the precystoscopic days was considered more or less of an anatomicopathologic curio, is being more frequently observed and studied as time progresses. Until 1898 Englisch was able to collect but sixteen authentic cases, and Adrian, 1905, reported fifty-two cases collected from the literature. These observations were mostly necropsy findings or accidental discoveries during the course of vesical operations. Of the fifty-two cases which Adrian collected, only twelve were diagnosed correctly during life. Since the advent of the cystoscope and a more thorough training in the interpretation of cystoscopic pictures, this condition is becoming more generally recognized.

The literature seems to show that these dilatations are more frequent in females than in males. Englisch in his series reports ten cases in females and six in males. It may occur at any age, some authors stating that it occurs, as a rule, at a younger age in females that in males. Cases have been observed in patients ranging from six weeks to sixty-two years of age. In the opinion of some authors, these sacs, because they occur in the new-born, must frequently be of congenital origin, especially since they are often associated with other developmental abnormalities, such as faulty insertions of the ureter, double ureters, harelip, cleft-palate, etc. Others are even more emphatic as to the congenital nature of these cysts, asserting that, even though certain inflammatory conditions, such as changes due to the passage of a calculus and ulcerations, have been assigned as predisposing causes, the lesion, nevertheless, is always congenital. This assertion, however, impresses me as being too sweeping.

The cysts may be unilateral or bilateral. It seems certain that many of the cases are acquired and are secondary to inflammatory processes. Whether congenital or acquired, the two most important factors in the production of these formations are obstruction and the disposition of the ureteral insertion into the bladder. Congenital obstructions of the lower ureter are not particularly infrequent. In many cases they are considered to be due to a plugging with epithelium in fetal life or gluing together by exudates. The acquired obstruction may be due to inflammatory changes of the ureteral orifice secondary to the passage of calculi, to ulcers in its region, to ureteritis from a renal lesion, such as tuberculosis, or to contractions following faulty implantations after a ureterovesical anastomosis. The second factor, the manner of ureteral insertion into the bladder wall, is also extremely important. The ureter normally runs obliquely through the bladder wall and is protected throughout its intramural course by the firm bladder muscles, except for the short distance through which it passes under the vesical mucous membrane to end in its corresponding orifice at the side of the trigon. In cases in which this submucosal distance is long, dilatations of the lower end of the ureter seem more frequent, and, as a rule, the longer this distance, the larger the cyst; hence, if an obstruction occurs at such an orifice, it is easy to conceive how a sac will form following the planes of least resistance, namely, toward the bladder.

Such cystic dilatations may assume different forms and shapes, the most frequent form being that of a papilla with the opening of the ureter at its tip. Other forms, such as the triangular, finger-like, cherry-like, round and ovoid, have been described. The size may vary from a dilatation which is scarcely appreciable to one which may completely cover the trigon and extend down to the internal orifice of the bladder and cause symptoms of obstruction.

The ureteral orifice may open at any part of the cyst; more frequently, however, and especially in larger cysts, the opening is at one or the other side. The composition of the cyst wall has been the subject of some controversy. All authors are agreed that it is composed of two mucous layers, that of the bladder and that of the ureter. A controversy has arisen concerning the intervening structure. The majority of authorities have found only fibrous tissue between the two mucous surfaces; a few, however, have noticed muscle tissue. Stones have been reported within the cyst (Freyer).

The ureteral mons may vary in shape and size. As a rule, it is circular and constricted. In some cases it seems quite patent; in other cases it is blind. Englisch reports six cases of this type. Many cases of this kind have associated with them evidences of obstruction in the upper tract, hydro-ureter and pyo-ureter and hydronephrosis and pyonephrosis.

The symptoms of this malady are variable and indifferent; the small dilatations, and many of the large ones, may occur without producing any appreciable disturbances. The usual symptoms may be classified as vesical and renal. The relation of the cyst to the urethral orifice is the important factor in the symptomatology. If it does not impinge on the internal sphincter, it may cause no symptoms, except, at times, at the end of the urinary act, when there may be terminal pain due to pressure. If the cyst is large enough to interfere with the normal emptying of the bladder, the usual syndrome of obstruction may be present. Naturally, if cystitis intervenes, the symptoms will be magnified. The renal symptoms are those of obstruction, namely, of hydronephrosis and pyonephrosis. These complications are more liable to ensue in cases of double ureter. Cases have been reported in which the opposite ureter has been obstructed owing to a large cyst.

The diagnosis is, as a rule, simple and can be made definitely by the cystoscope, which reveals in the region of one or both ureteral orifices, protrusion and retraction of a cyst-like swelling with a smooth surface covered by mucous membrane ballooning at the efflux of urine and retracting at the end of the act. Ordinarily the orifice is visible, generally presenting some abnormality. However, this is not always so, as in the interesting case reported by Young, in which the ureteral orifice of the intravesical balloon was within a diverticulum. Such cystoscopic findings will easily differentiate a ureterovesical cyst from any intravesical pathologic lesion of which I am aware.

The operations done in cases reported in the literature have been of two kinds, the suprapubic and the endo vesical.

The suprapubic operations which have been described have been (1) splitting the cyst and suturing lengthwise the two mucous surfaces, as in Adrian's case; (2) the resection of the cysts with a circular suture of the two mucous surfaces; (3) the hernia operation described by Young and utilized in his case of a ureterovesical cyst

---

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913

within a diverticulum. The endovesical operations have consisted in the splitting of the cyst at its ureteral orifice by means of a knife or scissors. Cases of this kind have been reported by Kelly, Pawlik, Albarran, Barringer and others. Results in some of these cases have been satisfactory. The objection to this procedure has been that recontraction of the orifice has been so frequent and rapid. Pawlik and Kelly mention this in their report and advise repeated dilatations similar to those utilized in cases of urethral stricture. Dilatation was done 112 times in Pawlik's case to prevent contraction.

I shall report six cases of well-defined ureterovesical cysts presenting some interesting features, which I have had the opportunity of observing.

Case 1.—Mrs. W., aged 39, was seen first in April, 1911. She complained of intermittent chills and fever, pain in the right kidney region, great vesical distress and marked asthenia. This woman had always been more or less of a chronic complainer. Her chief disturbance centered around her menstrual life, her menses having always been irregular, painful and profuse since their advent when she was 14 years old. In 1901 the patient had a placenta praevia. The fetus was removed and she suffered bad laceration of the cervix, which was later repaired. The patient said that in 1905 a doctor told her that she had a prolapsus of the uterus; for this she wore pessaries for four years. In 1911 a hysterectomy was performed and the conditions found at the operation were a fibroid uterus and cystic ovary. The patient reacted poorly after operation, had great trouble from her anesthetic, continued nausea, and marked weakness. On the twelfth day after operation a leakage of urine through the vagina was discovered. This continued for eight weeks. The patient in the meantime had developed a severe cystitis and evidently an infection in the right kidney pelvis. The diagnosis of a ureterovaginal fistula was made and a ureterovesical transplantation was done. The break in the ureter was found about ¾ of an inch from its lower end. It had resulted evidently from a ligature.

Following this operation the patient did fairly satisfactorily for about twelve days, when she began to have pain in her right side in the kidney region and developed irregular fever, chills and sweats. She was treated with urinary antiseptics, copious flushings with water and colon vaccine, as a colon bacillus infection was found. This time the patient left the hospital, went to her home in Wisconsin and remained there until the middle of October. The first part of her stay was fairly comfortable, but she was hampered more or less constantly by pain, chills and fever.

In September the pain in her side became more severe, the chills more frequent and the temperature ran higher. This time the patient began to develop symptoms of severe cystitis and gradually fell into a serious condition. She returned to St. Louis and consulted her surgeon, who found her in a very bad state, extremely weak and septic. She had a large mass in the right hypochondrium which was tender, and she was suffering extreme bladder distress. Her condition was so precarious that the surgeon deemed it unsafe even to attempt a nephrotomy, as she had reacted so poorly to former anesthetics and stood operation so badly. At this time I was called to see the case, and was asked if there was a possible chance of helping the process endovesically.

Cystoscopic examination showed an interesting picture. The bladder showed a general subacute cystitis, but the left ureteral orifice showed no important changes. The right half of the trigon was atypical owing to functionless ureteral orifice. Just above the region of the ureteral orifice a mass about the size of a large walnut was seen, which intermittently swelled and retracted. In the outer and upper part of this mass, when it protruded into the bladder, a small opening could be seen pointing directly to the right and ejecting small amounts of cloudy urine.

It was evident that the obstruction was mainly at the mucous membrane of the bladder, and I suggested to the surgeon that bladder drainage should be instituted in this place. For this purpose I passed a urethral speculum and then introduced a sharp hook. Next I introduced a spear, and then removed the speculum. The cystoscope was introduced and the balloon in the region of the orifice was caught with the sharp hook under the guidance of the cystoscope. This was given to an assistant and put on tension. I then pushed the spear through the orifice, and a large gush of cloudy material flooded and obscured the field. Pressure was made on the kidney in order to facilitate drainage. After the bladder was cleaned and refilled with clear solution, a knife was passed into the slit made by the spear, and two lateral cuts were made as deeply into the bladder wall as I felt safe in attempting. There was very little bleeding owing to the scar tissue. Following this, a ureter catheter passed easily and the renal pelvis and ureter were injected with collargol. A roentgenogram showed a large dilated renal pelvis about the size of a small orange; the ureter was markedly dilated and the stricture could be easily seen in the vicinity of the bladder. The ureter catheter was left in place in the ureter for lavage and for dilatation of the stricture. On account of vesical and ureteral spasm and the large dilated ureter above, the catheter stayed in place only about fourteen hours. This operation was done under cocain, and, after its completion, the patient felt greatly relieved. From that time on her pain ceased; the chills and fever disappeared in a few days, and she gradually improved. The urine after the one lavage of the pelvis became perfectly clear.

Realizing the danger of recontraction, we told the patient that she would have to have repeated dilatations. After this the orifice was dilated every three or four days; but, in spite of my attempts at dilatation, the ureteral contraction got ahead of me and there was still slight intravesical ballooning, so I decided to resect this whole area of obstruction and the cyst. The operation done was similar to the previous one with the exception that the balloon was caught with a small volsella and the resection was done with curved scissors This went beneath the mucous membrane and the specimen removed showed muscle-fibers.

The patient gradually regained her health. In fact, she felt better and was stronger than ever before. She gained 15 pounds in weight, attended to her household duties and to her social functions, and her only complaint was an occasional feeling of fulness in the right kidney region. She was again put on colon vaccines. She has been free from bladder symptoms and has had no fever since. I examined the patient by cystoscopy in June, 1912. At this time I found no intravesical ballooning. A No. 7 catheter passed easily. She still had a mild colon infection of her right kidney.

The cessation of symptoms was not due to the fact that the kidneys were not secreting, which Albarran has suggested is the cause of some of the cures, for I obtained urine of fair quality from this kidney, and a functional test of phenolsulphonephthalein showed it to be excreting one-half normal.

The patient remained perfectly comfortable until November, 1912, when she began to have some intermittent fulness in the kidney region, which was of slight consequence. The cystoscope at this time showed slight evidences of ballooning. The patient had a large ventral hernia, which her surgeon repaired. He also removed the kidney, which was small and atrophic, there being but slight pelvic distention. It was thought best to remove it as the patient did not want to run a chance of having any further trouble. She is now perfectly well.

Case 2.—Mrs. G., aged 42, complained of incontinence of urine, marked vesical distress and aching fulness in the right kidney region. The patient had been perfectly healthy until five years previously, when she was suddenly seized with an attack of pain in the right side. This was pronounced renal colic. Following this she passed a small, irregular stone; she remained well for two years, when she had a similar, but more severe, attack which terminated with the passage of a stone. She remained well until one year before I saw her, that is, two years ago. Then she began to complain of attacks of increased frequency of urination, trouble in starting the stream and pain at the end of the act. These attacks lasted for several days; they would then subside, only to recur. They became much more frequent. Two months before admission the patient suddenly had a retention, but finally voided with difficulty. Six weeks before I saw her she began to wet her clothes and also to wet the bed at night. Besides this she also had frequent desire to urinate, marked straining and tenesmus and voided but small quantities of urine. She passed no blood and had no chills or fever, but suffered from an aching sensation in the right kidney region.

On examination the patient seemed in good physical condition. Cystoscopy revealed an intermittent leakage of urine from the urethra and on close inspection a mass was noticed within the urethra about ¼ inch from the external orifice, which became larger and smaller. By stretching the urethra with a speculum a small opening at the tip of this mass was observed, from which the urine was escaping. A catheter was inserted and this mass was pushed into the bladder. The bladder was filled and had a normal capacity. The cystoscope showed a normal bladder wall. The left ureteral orifice was normal. On the right side of the trigon there was a long finger-like mass projecting toward the left side and extending down to the internal orifice of the bladder. This mass intermittently dilated and contracted. At the time of its dilatation it crowded against the internal orifice of the bladder. On the tip of this was a small irregular orifice of the ureter.

A procedure similar to the one utilized in the previous case was employed. The balloon was grasped with a tenaculum and given to an assistant. The curved scissors which had previously been inserted were then taken, and under the guidance of the cystoscope the whole balloon was resected, the denuded area being about an inch in diameter. There was some bleeding, but hot irrigation and epinephrin promptly checked it. Three days later a catheter was passed easily through the orifice. The patient in the meantime had been thoroughly relieved of her vesical distress. There was no leakage of urine, and the fulness in the right kidney region of which she had complained ceased.

Since the operation I have seen the patient on several occasions; she has been perfectly free from pain, and has had no incontinence. There has been no return of the ballooning and a No. 7 catheter passes freely. In this case I did not do a catheterization or functional test, as the operation was done at her first visit to my office.

Case 3.—Miss T., aged 42, was seen first in consultation April, 1913. She complained of increased frequency of urination. The patient had been perfectly healthy until several years previously, when she had an attack, somewhat similar to the present attack, which lasted a few weeks and subsided on internal medication. She was comfortable until a year ago, when she began to have markedly increased frequency of urination, voiding every fifteen or twenty minutes and arising three or four times at night. Her physician at this time found by cystoscopy a markedly ulcerated bladder which suggested tuberculosis; one ulcer was located around the right ureteral orifice. She had many specimens of urine analyzed for tuberculosis, but no bacilli were found. The trouble was pronounced a colon infection. The patient had no symptoms referable to the kidney.

The bladder capacity was 150 c.c. Cystoscopy showed a marked trigonal congestion with numerous ecchymoses, particularly around the left ureteral orifice and at the bladder dome. There was a healing ulcer about half an inch back of the right ureteral orifice. In the region of the right orifice there was a typical ureteral vesical cyst, which at its largest was about the size of a cherry. The orifice was small and situated at the tip of the balloon. The balloon pointed downward toward the midline. After much manipulation a No. 5 catheter passed through the orifice. The left ureter was easily catheterized with a No. 6 catheter. The kidneys were found negative, and the patient's physician is endeavoring to cure her cystitis. She has promised to return in order to allow me to determine if there is any dilatation of the upper urinary tract and later to resect the cyst if necessary.

Case 4.—Mr. Z., aged 26, single, complained of pain in the right side and increased frequency of urination. He had complained of this pain in his side for one week, but of the slightly increased frequency of urination for several months. By cystoscopy in May, 1911, I found a tuberculous bladder with ulceration around the right ureteral orifice. The right orifice showed a small intermittent dilatation which, at its largest, was about the size of a cherry. The orifice, which was irregular and scarred, pointed mesially, and a thick, ropy material exuded from it. A No. 5 catheter passed through the left orifice easily. The left urine was normal. The urine showed a normal phenolsulphonephthalein output. From the right side there was practically no secretion owing to the plugging of the catheter with pus. There were numerous tubercle bacilli. I did a nephrectomy two days later from which the patient made a nice recovery. Two months after operation there were no evidences of ballooning, but the orifice was flabby.

Case 5.—Mrs. M., aged 46, widow, complained of frequent urination. The patient sent to me for cystoscopic examination. She had a rectocele which her surgeon was about to repair. She had had no symptoms referable to her kidneys whatever.

Cystoscopy showed the bladder capacity normal, marked trigonal hyperemia, but no ulceration. The left ureteral orifice was normal. On the right side of the trigon there were two ureteral orifices. The upper and outer orifice was normal. The lower orifice blew out as a small cyst about the size of a cherry and then retracted to the bladder level. The orifice was at the tip and centrally poised. Clear urine was emitted slowly at the time of the ballooning. A No. 5 catheter passed through this opening, and a No. 6 through the upper opening. The lower catheter passed higher than the one which entered the upper ureteral opening. A No. 6 catheter passed easily into the left ureteral orifice. Urine from all three orifices was clear and uncontaminated.

The patient was advised to have a shadowgraph catheter passed and pyelography done; she consented, but unfortunately failed to keep her promise, and neither her surgeon nor I has seen her since. I cannot blame the cystoscopy for this, as she suffered no pain.

Case 6.—Sister M., aged 29, was sent to me by her surgeon for a cystoscopic examination and ureter catheterization. Roentgenoscopy showed a large kidney with many shadows and the patient presented a characteristic history of renal retention and vesical irritability. Her left kidney was enlarged and tender, and she had suffered from intermittent chills and fever.

Cystoscopy showed a general subacute cystitis. The right ureteral orifice was normal in appearance. On the left side of the trigon an intermittent ballooning was observed. This ballooning was pyriform, and when it protruded it ran obliquely downward and inward and followed the outer margin of the trigon for about half its distance. The ureteral orifice was small and irregular, was situated above and external to the cyst and was uninfluenced by the swelling of the balloon. From it projected a worm-like purulent mass. The orifice seemed to occupy a fixed position, the dilatation going below it. A No. 6 catheter passed with difficulty, but no urine could be collected owing to the thickness of the pus. Urine from the right side was normal and showed an excessive phenolsulphonephthalein output, 62 per cent. for one hour.

The patient's surgeon did a nephrectomy, but on account of my not having seen the patient since the operation I cannot report further regarding the cyst.

A summary of the features of interest in these six cases is as follows: The ages ranged from 26 to 46 years. Five of the patients were women and one was a man. Five of the cysts were located on the right side, one on the left side. One was associated with double ureter and seemed to be the only case which could be definitely classified as of congenital origin; the other five cases presented evidences sufficiently clear to allow them to be tabulated as acquired abnormalities. Of these five cases, one was secondary to a ureterovesical anastomosis; one resulted from inflammatory changes around the ureteral blood coagulum. This explanation seems to fit my second case. Noteworthy is the fact that all fatal cases of hemorrhage recorded in the literature, including my own, were observed in men, demonstrating again the greater resistance of women to loss of blood.

Therapeutically, internal remedies (stypticin, gelatin, epinephrin) are of little or no value. Tamponage of the kidney is practiced at Israel's clinic and has yielded there better definite results than secondary nephrectomy. Albarran[14] has abandoned intrarenal in favor of extrarenal tamponage, which he claims to be effective without possessing the disadvantages of the former method (sepsis, secondary hemorrhage in removing gauze pads). Removal of the bleeding organ is, according to the majority of authors, the safest method; it is the *ultimum refugium*, which, when permissible by the condition of the other organ, should be carried out without delay.

PERIRENAL INFECTION AND SEPTIC NEPHRITIS

Perinephritis of more or less gravity and extension may follow nephrolithotomy done on an infected stone-kidney. Perirenal infection, as a rule, starts in the wound, which, in spite of all precautions, will become contaminated with septic material from the incised kidney; rapidly the loose tissue around the kidney becomes involved and especially the indurated and poorly nourished fatty capsule offers a fertile soil for the infection, which in patients with low resistance may spread to the peritoneum. The most prominent symptoms of this septic peritonitis are marked meteorism and paralysis of the bowels. Albarran describes such a case[15] and I have recently made a similar observation.

Case 3.—Man of 33 with very severe right-sided and moderate left-sided pyuria; marked deterioration of function of right kidney. Characteristic calculi shadows in both kidney regions. Operation revealed horse-shoe kidney, with advanced pyonephrosis of its right half. No line of cleavage between both renal halves. Calculi of the size of olive-pits can be palpated in both halves of kidney just above the renal pelvis. Nephrolithotomy with drainage by rubber tube on right side; removal of calculus of left side by small pyelotomy incision.

The patient rallied well from the operation. During the first few days his temperature was about 99 F., his pulse between 90 and 100 and of fair volume, his general condition satisfactory; bandages were always very wet and several ounces of urine were removed from his bladder by catheter. On the fourth day meteorism set in, which increased rapidly. No bowel movement could be obtained in spite of laxatives and high enemas. Death occurred on the seventh day under symptoms of general sepsis (high temperature, rapid and small pulse, singultus, nausea, bronchitis).

Important items of the necropsy report are: Peritoneum hyperemic and covered with thin shreds of fibrin in a few places; transverse folds of small intestines in some places covered with grayish pseudo-membrane; hyperemic spots in cecum; both lungs contain many greyish-red bronchopneumonic spots in posterior part of lower lobes. Tissue around kidney shows hemorrhagic infiltration. Marked parenchymatous degeneration of liver.

A different result could have possibly been obtained in this case by primary removal of the pyonephrotic half of the horse-shoe kidney.

Graver than perirenal infection is that of the operated organ itself, which results in a septic nephritis. Albarran[16] gives a good description of the symptomatology of this condition (irregular temperatures, severe pyuria, general malaise, etc.), which almost always ends fatally under the symptoms of a systemic urosepsis. It is not advisable to lose valuable time with expectant or palliative measures (laxatives, diuretics, antiseptic irrigations, vaccine therapy). Removal of the diseased organ constitutes the only effective, and, in some instances, life saving treatment.

FISTULA

Nephrolithotomy for infected stone-kidney is, as a rule, followed by urinary fistula of shorter or longer duration. Such fistulas may, as every surgeon with experience in renal work will admit, occur in spite of faultless operative technic and persist many months, or even years. They are due to retention of septic material in the kidney or its pelvis, and to imperfect drainage. After the removal of one or more concrements from a pyonephrotic kidney, the patient is left with a constantly secreting, suppurating sinus which leaves him an invalid, makes existence miserable and may even be a serious menace to life. The healing of such a fistula that the patient has carried about for many years, is not infrequently coincident with total loss of the anatomic and functional value of the organ operated on, as in the following observation:

Case 4.—A man of 42 with bilateral pyonephrotic stone-kidney underwent left-sided nephrolithotomy over seven years ago, resulting in a suppurating fistula, which persisted more than three years, but finally healed spontaneously. At the first cystoscopic sitting after closure of the sinus, only a very small amount of urine could be collected from the left kidney, which, on examination, demonstrated the almost complete loss of function of that organ. On several cystoscopic examinations during the last three years no characteristic spurt was visible, nor could any fluid be obtained from the left ureter. The patient, though, is able to continue in his arduous business with his only functionating right-sided pyonephrotic stone-kidney.

While closure of postoperative fistula may follow expectant or conservative local treatment, secondary nephrectomy is, nevertheless, in many instances, the only effective means of relieving the patient from his distressing condition; it should be performed without too long delay, especially in cases in which the function of the remaining kidney is known to be satisfactory.

PYELOTOMY AND PRIMARY NEPHRECTOMY VERSUS NEPHROLITHOTOMY

It is thus apparent that there exist extended limitations to the general application of nephrolithotomy. The operation possesses obvious advantages (preservation of the kidney operated on, good view of renal calices and pelvis, comparatively small functional impairment). Its various immediate and remote untoward results, however, have gradually turned the tide toward other and less dangerous surgical procedures, for which the development and perfection of radiography and the various functional kidney-tests permit, at present, strict preoperative indications. Thus posterior pyelotomy has been advocated, of late, by many European surgeons as the operation of choice for the extraction of stones situated in or near the pelvis of aseptic or moderately infected stone-kidneys. In this country the attitude of most surgeons toward pyelotomy is more conservative. I recommended[17] the operation for suitable cases several years ago, and Eisendrath,[18] in a recent noteworthy publication, considers it destined to become an active competitor with nephrotomy in the majority of cases.

---

[14] Albarran: Médecine opératoire des voies urinaires, p. 164.

[15] Albarran: Ibid., p. 167.

[16] Albarran: Ibid., p. 166.

[17] Krotoszyner, M.: Trans. Am. Urol. Assn., 1908.

[18] Eisendrath, D. N.: The Journal A. M. A., April 12, 1913, p. 1145.

While pyelotomy is applicable only for the comparatively small group of aseptic and moderately infected cases, primary nephrectomy ought to gain more and more ground as the simplest, safest and quickest curative method for advanced pyonephrotic stone-kidneys in which the other organ is found to be functionally and anatomically intact. By being able to formulate preoperative indications for nephrectomy, the possibility arises of removing a pyonephrotic sac without opening it during the operation for inspection; thus quick closure of the wound is obtained and rapid convalescence and complete cure ensues. Bevan[12] reports improved results in his work on infected stone-kidney because he has recognized more than formerly the necessity of doing a primary nephrectomy. Kümmell[19] reports twenty primary nephrectomies for pyonephrotic stone-kidney without death, and among twenty-four nephrotomies for the same condition three fatalities and eight secondary nephrectomies. At Israel's clinic[20] the operative mortality for nephrotomy in infected cases was doubly as large as that of primary nephrectomy, 11 against 22 per cent. The indications for primary nephrectomy can, moreover, under certain conditions be extended to bilateral stone-kidney, especially in cases in which the burden of renal function is known to be carried by one organ only and in which the patient through a quicker and simpler operative procedure is at once relieved of an anatomically and functionally useless organ.

CONCLUSIONS

1. Nephrolithotomy is connected with serious immediate and remote untoward results.
2. It should be, wherever feasible, replaced by posterior pyelotomy.
3. Nephrectomy is the simplest, quickest and safest curative method for pyonephrotic stone-kidney, provided the function of the other organ is satisfactory.

999 Sutter Street.

THE IMPLANTATION OF THE URETERS INTO THE LARGE BOWEL *

CARL BECK, M.D.
CHICAGO

During recent years the problem of implanting one or both ureters into bladder, ureter or bowel has repeatedly been the subject of theoretical discussion and practical experiments, and conclusions have been drawn from the success obtained as to the possibility and expediency of this method.

The first one to undertake an implantation of the ureters into the intestinal tract was Simon, who in 1851 operated for an ectopy of the bladder by uniting the ureter with the rectal wall through a tight knot, which cut through and produced a communication between ureter and rectum. For two months the patient passed urine through the rectum, but then the anastomosis became very narrow, the urine escaped through the fistula, and the patient died.

In 1879 Theodore Smith of St. Bartholomew Hospital published in the hospital reports an account of a case in which he implanted both ureters into the colon; the patient, however, died. In 1891 Kuester of Marburg resected the whole bladder for a cancer and implanted the ureters into the rectum, also with fatal result. The first successful operation of this kind was performed by Chaput, whose patient lived for thirteen years. Gluck, Zeller, Bardenheuer and Novarro made experiments on animals. Morestin, Harvey Reed, Boari, Peterson, Martin and Zeit have all devoted a great deal of study to these questions in experimenting on lower animals as well as in operating on human beings.

There is, however, a great difference in operating on the lower animal and on man, since in the dog, for instance, the ureter is very small and thin and the bowel quite coarse, so that a union is not so easy as a similar union in a human being. Nevertheless a comparatively large number of good results have been obtained in animals and, though not a large number, several cases have been recorded in which the results of such transplantation in human beings have been successful. Chaput in 1910 records besides his own case, in which the patient lived for thirteen years, the case of Chalot's patient who lived for one year, of Guinard's who lived for five years, Michaud's who lived for two years, Auvray's for fifteen months, Boari's for six months, Fowler for three and one-half years, Peterson's for ten months, Beck's for seven months (which is, however, a mistake, since he lived eighteen months) and Martin's for eighteen months.

The indications for performing such an operation are rather rare. The principal indications are (1) injury of the ureter, in which it cannot be sutured again or implanted into the bladder, (2) fistula of the ureter, (3) painful cystitis (cystitis dolorosa, Trendelenburg), (4) total cystectomy (Kuester) and (5) ectopy of the bladder (Simon).

After Simon, Maydl has done more than anybody else to popularize the operation for the last indication, since he has had a number of successful results. But, on the whole, these operations have not gained an enthusiastic following on account of a great many drawbacks, principally the infection of the kidneys secondary to the operation and the difficult control of urination. Guyon and Albarran have shown, however, that an infection of the kidney does not necessarily follow an ascending infection of the ureters.

The methods of implantation of the ureters which have been used are mainly four:

1. After the first discovery of the bad consequences of the ordinary implantation and after Maydl's experiments a part of the bladder was taken along with the ureter for implantation, and good results have thus been obtained. This method, however, is not possible except in case of exstrophy and perhaps cystitis dolorosa.

2. The method of Chaput is the direct union of the wall of the ureter to the wall of the bowel. This method has been successful, but it is the one which endangers the union most of all. Peritonitis may follow this method very easily, since it is difficult to prevent a pulling out of the sutures by the action of the bowel or by infection.

3. Boari's method makes use of a small button, which is very similar to the Murphy button in its principle. A case in Giordano's clinic has shown, however, that concretions can form in that button.

4. The last method consists of the oblique implantation of the ureter into the bowel by a procedure such as Witzel has described for the oblique gastrostomy, sewing a catheter into the stomach-wall. Krinsky has described a method of oblique implantation of both ureters into the rectum with a flap-operation which is done by sewing

---

[19] Kümmell: Ztschr. f. Urol., 1908, ii, 349.

[20] Israel: Chirurg. klin. d. Nierenkr., 1901, p. 368.

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

a flap of peritoneum and external muscle over the implanted ureter. Fowler has given us a method for flap-operation, in which the flap is made of the wall of the bowel.

The oblique method is one which I have used in my cases of implantation with this difference, however, that I have allowed the ureter to dangle with its free portion into the lumen of the bowel. I had the idea that the infection would be prevented by such a procedure, and, furthermore, that the lumen would not be included in a cicatrix of the bowel and therefore would remain patulous. I must say, however, that my first case showed that only one lumen remained patulous and that the other was very much constricted. It seems, nevertheless, that the portion of one ureter hanging down into the bowel has either become gangrenous or has retracted.

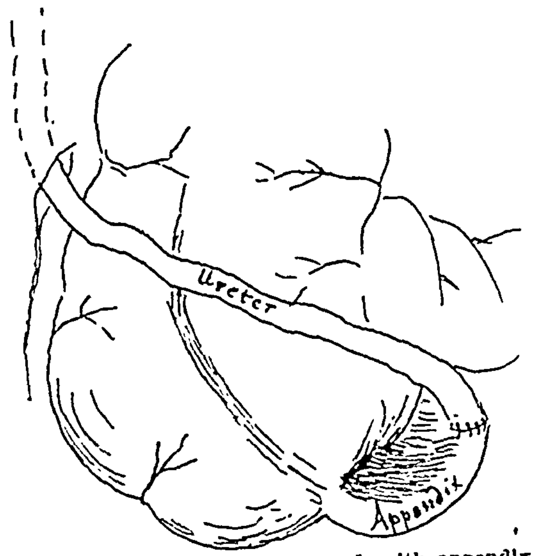


Fig. 1.—Ureter anastomosed with appendix.

The records show that the results obtained by various surgeons differ widely, and therefore the question, whether or not this operation is possible and expedient, is not yet solved. Each case bearing on the subject, whether successful or not, ought to be reported in order to give sufficient material for a decision as to whether implantation should be made use of or dropped. We have to consider this matter from two different points of view: first, with regard to the technical part and then with regard to the pathologic changes following the operation. If the ultimate result is unfavorable, we can call this operation only a palliative one which ought to be rejected, if the danger connected with it is in disproportion to the benefit which might be derived from it. In this case, though the operation be ever so simple technically, it will not acquire a place in surgery.

Unfortunately the above-mentioned consideration is often neglected, and a success is reported before the process of healing has ended. This, of course, perplexes the critical observer. Maydl's experiments were made years ago and certainly are the most important ones, because they were made by so careful and competent a surgeon. But his cases are throughout cases of exstrophy of the bladder of a particularly simple nature, his patients having been in good health in every other respect.

I will not enter into the details of the literature, but the description of two typical cases, which have been closely watched, may be welcome.

Case 1.—*Patient.*—A. F., aged 27, cigar-maker by trade came to me for the first time fourteen years ago in order to be treated for an obstinate disease of the bladder. He came from a family predisposed to tuberculosis (I had operated on his brother for a tuberculous fistula of the rectum) and had been weak from infancy. In early childhood he suffered from poliomyelitis, which caused a paralysis of one leg. When 20 years old he was operated on radically by Dr. J. B. Murphy for a pararectal abscess; a high dissection alongside the intestine, between bladder and rectum, had been necessary. It is not certain, but possible, that the affection of the bladder which I am going to describe originated from the rectal tuberculosis.

Present Illness.—Fourteen years ago the patient was troubled with a permanent strangury, which from time to time caused hematuria. The intervals between such attacks were sometimes but a few minutes. The examination of the urine showed a small amount of albumin and a great many pus-cells and led to the conclusion that there was a tuberculous cystitis. The cystoscopic examination gave a positive result. The bladder-wall was entirely covered with tuberculous ulcers. After a thorough reflection I advised drainage of the bladder above the symphysis, which was then done. When the cystotomy was made, the bladder proved to be badly infiltrated and without any active contractility; the walls were rigid and covered with tuberculous ulcers. I curetted the tuberculous masses thoroughly and drained the bladder for some time through a tube. The patient recovered visibly and for some months was in good condition. Gradually, however, all the bad consequences of a long drainage of the bladder appeared. The urine produced an obstinate eczema of the abdominal wall and of the scrotum, and the patient asked urgently for relief. I could not decide on recommending exclusion of the bladder, and I sent him for three months to the county hospital, where through rest and lying on the back he was cured of the eczema but retained his fistula. Finally I advised him to have the bladder excluded and the ureters implanted into the bowel, and this operation was done Jan. 10, 1899.

Operation.—I shall not enter into the particulars of a technical description, but I wish to state that I used a method which I had devised especially for this operation. I put the patient in Trendelenburg's position, isolated both ureters, cut them across not far from the bladder and on the right side implanted the ureter into the cecum, on the left side into the sigmoid flexure. The peritoneal covering of the bowel was removed with a flap of the muscular coat of the bowel, then the bowel was opened obliquely and the ureter was drawn far enough into the lumen with a thread to insure its dangling there. The opening of the ureter was made wide by slitting it open to one-quarter of an inch, then the peritoneal flap was carefully sutured over the implanted ureter. I

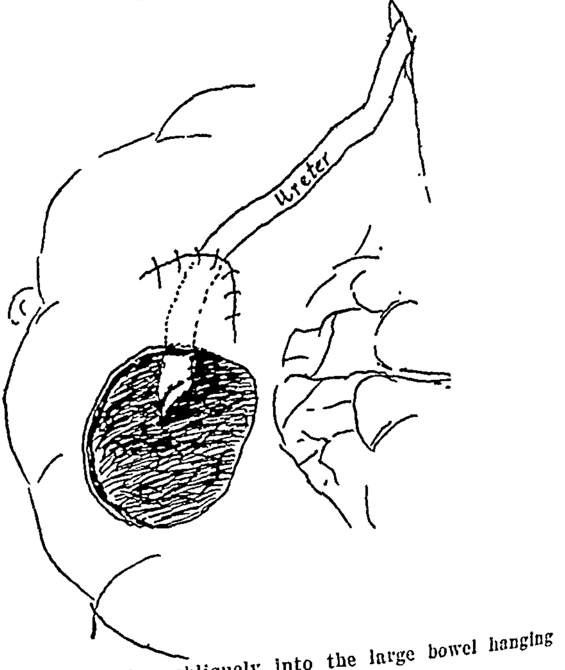


Fig. 2.—Ureter passing obliquely into the large bowel hanging with its free extremity into the cavity.

imagined that I could in this way avoid the two main drawbacks observed after all implantations, namely, stricture of the orifice of the implanted ureter and infection from the bowel; for the free ureter-end, the orifice of which had been obliquely split, could not shrink, and infection starts from the granulation at the spot of the implantation of the ureter into the bowel or at the stitch-holes.

Postoperative History.—My patient recovered after a rather long illness and was perfectly well from this time on to the day on which he entered the hospital again, that is, during a period of eighteen months. It was of great physiologic interest that the periods during which he could control the urine gradually grew longer and longer, that he did at times separate the discharge of feces from the urine, that he was able to hold the urine in the bowel during a whole night, and that the urine discharged was at times absolutely clear. During these eighteen months he had no trouble whatsoever which would point to an affection of the kidneys until precisely the time when he came back to the hospital, and even then the lung-trouble outweighed the kidney-trouble, so that till the end I was not sure whether he died from tuberculosis of the lungs or from tuberculosis of the kidneys.

The pathologic changes have been carefully examined, the case itself has been closely observed clinically and post mortem, and the observations made might be of use for the determination of the question, when, if ever, a transplantation of the ureters is indicated.

Necropsy.—Patient is emaciated; his panniculus has disappeared almost entirely. An opening of the head has not been permitted. Mouth and pharynx are absolutely normal; so are the larynx and the trachea; in the trachea masses of bloody, colored mucus are found. Both apices of the lungs are emphysematous and the pleurae of both sides are totally adherent to the chest-wall. The right lung is permeated with old tuberculous scars and callosities and the left lung shows many symptoms of a recently rapidly progressing tuberculosis. Some of the caverns are connected at points. The abdominal viscera show the most interesting changes. The liver is hypertrophied and amyloid, the gall-bladder very much dilated but otherwise normal. Stomach and intestine show no sign of tuberculosis, not even in the part through which the urine was flowing. In the region of the sigmoid flexure are hard peritonitic adhesions, which date from the operation. The kidneys show the worst changes. Neither of them can be palpated, because the entire fatty capsule is badly infiltrated, and even after a slight dissection it is evident that both kidneys are surrounded by an extensive peritoneal exudate with multiple abscesses. The pus is yellow and thick and shows the signs of a cold abscess. The right kidney is partly normal; on other parts it shows macroscopic changes of acute and chronic inflammation. On this side the ureter and the pelvis of the kidney are fairly normal. The left kidney is almost entirely transformed into necrotic tissue, so that the normal borders of the kidney and the pelvis can no longer be discerned. The ureter of this side is much distended and following it up to the bowel we see that the orifice is almost obliterated. The sigmoid flexure is open in the region where the ureter has been implanted, and, besides a few very small tuberculous and cheesy degenerated lymph-nodes, does not show any symptom of tuberculosis or any sign of irritation. The mucous membrane of the bowel is not normal in appearance; in color and luster it looks rather like the mucous membrane of a bladder. The right ureter is still dangling free down into the lumen by one-quarter of an inch. The projection of the left ureter has disappeared and the opening can be found only with difficulty with a fine sound. At its orifice are concretions of urates. The bladder seems to have shrunk entirely and is contracted to a small nodule almost without any lumen. The microscopic examination of both kidneys, so far as the tissue could be plainly discerned, shows, besides an amyloid degeneration, a bad infiltration of the interstitial tissues with quantities of bacteria and cocci. The microscopic examination of the ureter shows no tuberculosis. The microscopic examination of the bowel below the place of the implantation shows a strange transformation of the epithelium into a pavement epithelium very much broken up on the surface.

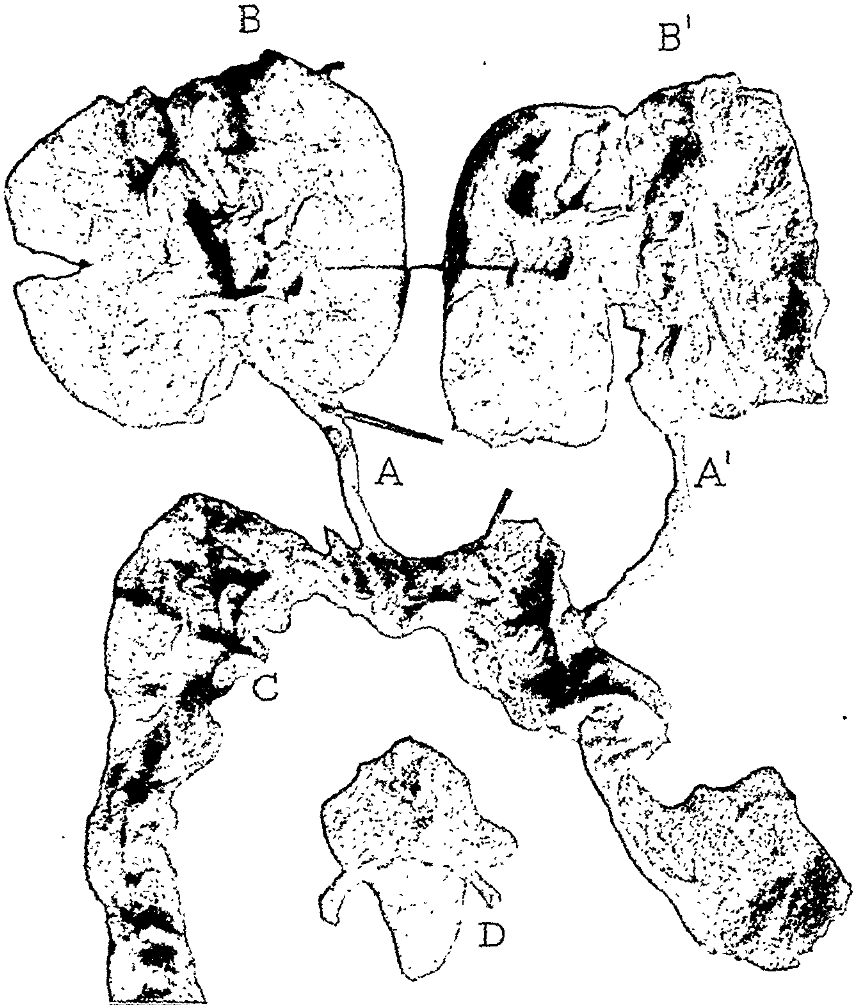


Fig. 3.—Implantation of ureter into intestine. *AA*, ureters; *BB*, kidneys; *C*, large bowel; *D*, bladder. About 3/16 actual size.

I waited many years for a chance to repeat this interesting operation for a similar indication. Last year the following case in my practice seemed to me to indicate at least a temporary transplantation of the ureters.

CASE 2.—*Patient.*—Mr. S., 60 years of age, was a packer in a crockery house. For the last sixteen years he had suffered from bladder-symptoms, which indicated either a stone in the bladder or an enlarged prostate. He had frequent urinations; occasionally his stream was interrupted suddenly and he had to strain; he also had to get up nights frequently; he suffered pain. The examination showed the prostate not much enlarged but a chronic hyperplastic cystitis; there was no stone in the bladder. But a roentgenogram revealed distinctly a stone of the size and shape of a nickel either encysted or in the left ureter.

First Operation and Results.—I decided to make a suprapubic cystotomy, and I found that the stone was contained in the left ureter about one inch above its orifice in the bladder. The ureter had to be split for that distance, and the stone was removed. It was noticed that a good deal of granulating tissue formed the bed of the stone. The patient did not make a very good recovery. It was interrupted by chills and fever and suppuration of the cavum retzii. He did not pass any urine in the natural way; the fistula had no tendency to close. During the following months several attempts were made to close the fistula and lead the urine the normal way but without success.

Second Operation and Results.—I decided, therefore, that the prostate, though it was not very much enlarged, must be the cause of this trouble and removed the prostate by an infrapubic cystotomy, draining the bladder downward and hoping for closure of the fistula of the abdomen. For a short while it seemed as if we would succeed, but only for a short while. Suppurations came again on the abdomen and the sinus caused the patient a great deal of trouble. Again I tried an excision of the sinus and closure of the bladder, but without success. In this time—about two years since the first operation—the bladder had become rigid and hard and could not retain regularly more than one ounce of urine, though at times, with much pain, the patient could distend it to hold several ounces.

Third Operation and Results.—I decided to make a last attempt; but when I had dissected down to the mucosa I found it so covered with ulcers and stony concretions that I thought the wiser plan would be to transplant the ureters, temporarily at least if not permanently, into the bowel and give the bladder a chance to heal out and to close, and, if it should do this and make a permanently closed viscus, to reimplant the ureters afterward. The man was in good health but unable to endure the flowing of urine over his abdomen or to wear a tube for drainage.

The operation was performed in a similar manner to that in the first case, except that the right ureter was implanted into the appendix. The man recovered promptly and has so far been able to control his urine for a couple of hours at a time. He is at least free from the molesting constant discharge of urine and the eczema. The fistula of the bladder is closing down at the time of writing this paper, and the bladder seems to be healing.

CONCLUSIONS

I considered this process of temporary transplantation analogous to temporary gastro-enterostomy for an ulcer of the stomach or duodenum.

Though only the short period of a few months has elapsed since the implantation in the second case, I am inclined to believe that this patient also will in course of time develop pyelitis; but his bladder may have a chance to recover and become a healthy viscus, and a reimplantation of the ureters may be made into the bladder, if he does not prefer the present tolerable condition.

In cases of tuberculosis of the bladder a permanent implantation made into the bowel is only palliative, but the method of free-end implantation of the ureter or the implantation into the appendix insures a longer period of freedom from pyelitis than any other. I think that it is even possible to implant both ureters into the appendix.

601 Deming Place.

Ureteric or Vesical Calculus.—Now it is a fact which has long since been accepted that a stone lodged in the ureter just near the bladder evokes all the symptoms of stone in the bladder, in addition to those symptoms which arise in the kidney from ureteric obstruction. There is the same frequency of micturition, the same tenesmus, the same meatal pain in juxtavesical ureteric stone as in vesical stone.—Hurry Fenwick, in (London) *Clinical Journal.*

THE REPAIR OF DEFECTS OF THE URETER *

DANIEL N. EISENDRATH, A.B., M.D.
CHICAGO

The surgeon is often confronted with a case in which a normal functionating kidney might be saved if a portion of the diseased ureter could be removed and the defect corrected either by some form of anastomosis of the severed ends or by substituting another structure for the removed segment of the ureter.

Anastomosis of the two ends has been seldom successful in the human being, when the ureter was divided either accidentally during operation or by injury or intentionally during the removal of a diseased segment. The various methods which can be employed for an anastomosis of the severed ends are (*a*) end-to-end, (*b*) end-to-side (Van Hook), and (*c*) invagination methods (D. Antona). Of these the ingenious method of Van Hook seems the most rational. It is superfluous to quote the technic here, since it is so well illustrated and described in all of the standard text-books of surgery. Owing to the tortuous course and elasticity of the human ureter, it is possible to unite the ends even though there is a gap of 3.2 inches (Von Bergmann). Experiments on dogs and results in human beings show that the Van Hook method of invaginating the proximal end into a slit on the lateral wall of the distal end gives the most satisfactory results of any method of anastomosis.

I have not considered, in this paper, the various methods of reimplantation of the proximal end of the cut ureter into the bladder or bowel. It is a well-recognized fact that one can resect the ureter close to the bladder or to the kidney and reimplant the corresponding end into another portion of the bladder or into the renal pelvis and thus save the kidney with perfect maintenance of its function. Reimplantation of the ureter into the bowel is impracticable on account of the irritant action of the urine on the mucous membrane causing persistent diarrhea and on account of the frequent occurrence of ascending infection.

The thought has occurred to many surgeons who have been obliged to resect a ureter either on account of its involvement in malignant disease or owing to a stenosis that, if some structure could be transplanted, the vitality of which would be maintained until union had occurred, the ureter could be resected and the corresponding healthy kidney saved. The structures which have thus far been employed with this object in view are (*a*) segment of an artery, (*b*) segment of a vein, (*c*) segment of the horn of the dog's uterus (fallopian tube), and (*d*) segment of the bowel or vermiform appendix. One fact favors the implantation of a segment of other structures, namely, that the ureter has within its own walls a rich vascular supply and that, although it is completely separated from surrounding structures, the vitality of the ureter is readily maintained. I shall briefly enumerate the names of those who have attempted to solve this problem and the structures employed as grafts between the two ends of the severed ureter.

1. Floercker, Melchior, Domenici and Tietze employed segments of arteries and veins.
2. Fenger and Bacon, Poggi and Tizzoni, D'Urso and DeFabi, Esou and Moskowicz employed loops of intestine, excluded

---

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Department of Experimental Surgery of the Morris Institute for Medical Research, Chicago.

from the remainder of the bowel, but still attached to their mesentery.

3. Gionnettasio, Rydygier and Frank transplanted the appendix, attached to its mesentery, but separated from the rest of the bowel.

4. Floercker, Stubenrauch, D'Urso and DeFabi used the long horn of the dog's uterus.

5. Casati, Boari and Van Hook used a flap of the bladder in the form of a tube, the upper end of which was sutured to the ureter.

The results in all of these cases may be divided into three groups: In the first, the flap became necrotic and general peritonitis resulted. In the second group of experiments, the proximal end of the ureter became adherent to the abdominal wall and a urinary fistula resulted. In the third group, the transplanted segment survived, but gradually became converted into connective tissue with resultant stenosis and hydronephrosis. The results in all of these experiments were uniformly unsuccessful. The reason for the difference in results obtained in transplanting a segment of blood-vessel into another blood-vessel and those obtained by transplanting the various structures just enumerated into the ureter can be explained according to Domenici and others by the following two hypotheses: (1) The blood circulating in the vessels will nourish the endothelium of the transplanted piece, while in the ureter the transplanted piece will become necrotic, lacking the circulating nourishing blood, before sufficient communications have been formed between the transplant and the ureter walls; or, (2) the necrosis of the transplanted piece of arterial or venous vessel can be caused by the difference in function of the ureter and blood-vessels, as the latter will not adapt itself to the new function. I thought that if we could secure as a free transplant a portion of the bladder, completely separated from the rest of the bladder, and insert this graft between the two ends of the divided ureter, we would thus secure a structure of which the lining membrane was accustomed to the presence of urine and thus less apt to undergo cicatricial changes.

The technic employed after a few preliminary trials was the same throughout the twelve experiments. The ureter was easily exposed through a pararectal incision. The entrances of the ureters into the bladder of the dog are easily found, the bladder itself being mobile and extending far up into the abdominal cavity like a pedunculated ovarian cyst. The fundus of the bladder was grasped by two fine artery forceps, and a portion of the fundus about 1 inch wide and 2 inches long severed from all connections with the remainder of the bladder. The bladder was then closed with two rows of fine chromic gut sutures.

In the insertion of this suture in the bladder the operator must exercise great care not to include the ureters in the suture. The trigone in the dog's bladder is long, the ureteral orifices lying some distance from the internal meatus and much nearer the vertex than in man. The ureter was divided transversely and a segment 1 inch long removed, and the severed ends temporarily clamped in order to prevent escape of urine and blood into the peritoneal cavity. It is usually necessary to ligate several of the periureteral vessels, especially at the distal end of the ureter. No attempt was made to bring the ends of the ureter into accurate approximation with the ends of the transplant owing to the great difference in the size of the lumen of the divided ureter and that of the tube formed by uniting the edges of the transplant. The method employed for bringing the ends of the ureter in contact is well shown in Figures 1 and 2. The ends of the ureter, both proximal and distal, were split and the ureter fastened to the interior of the wall of the transplanted bladder segment by several chromic gut sutures passing through the entire thickness of the wall of the transplant and tied on its outer aspect. A tube was then formed by suturing the edges of the transplanted bladder segment with one row of chromic gut through and through and a second seroserous row of fine arterial silk. In order to prevent the retraction of the ureter from the interior of the transplant, several chromic gut sutures were inserted through the walls of the ureter and transplant, above and below the entrance and emergence of the ureter (Fig. 2).

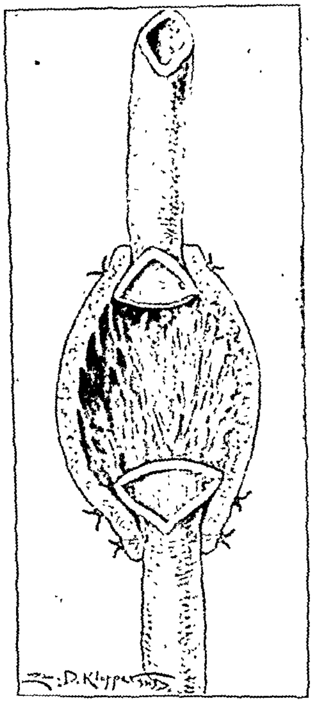


Fig. 1.—Method of inserting two severed ends of ureter in cuff of detached bladder flap.

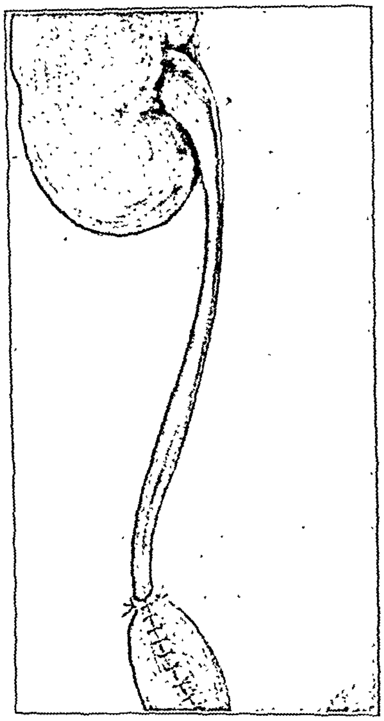


Fig. 2.—Exterior view of ureter shown in Figure 1.

The results obtained can be divided into the same three groups as those of the previous investigators. First, in several of the dogs the proximal portion of the ureter became adherent to the abdominal incision and a urinary fistula was established. Second, in six dogs the transplantation segment of bladder became necrotic before union had occurred between the ends of the ureter and the transplant, with subsequent leakage of urine and general peritonitis. The third group includes those cases in which the graft survived at least temporarily, but when the dogs were examined from four to six weeks after operation it was found that the transplanted bladder segment had contracted and had become converted into a mass of cicatricial tissue. The opening of the proximal end of the ureter was greatly narrowed so that the lumen at this point was reduced to a minimum. From this point upward the ureter was greatly dilated and there was a moderate degree of hydronephrosis.

The results, therefore, of my experiments, using free segments of bladder, are practically the same as those of other investigators who have employed segments of blood-vessels, bowel, appendix and uterine horn.

CONCLUSIONS

1. One can transplant portions of the bladder to take the place of segments of the dog's ureter.

2. These transplanted segments will preserve their vitality even though they have no vascular connection with the bladder.

3. It is immaterial whether the divided ends of the ureter are brought into exact end-to-end approximation with the transplant or are sutured to its inner surface in the manner described.

4. Even though the bladder mucous membrane is accustomed to the presence of urine, it will undergo cicatricial changes in the same manner as other structures, as artery, vein, appendix, bowel, horn of uterus, which are lined with endothelium or mucous membrane, not accustomed to presence of urine.

5. Even though union of the transplant occurs, it soon becomes transformed into connective tissue drawing the two ends of the ureters together with resultant stenosis of the ureter and hydronephrosis and hydroureter.

I wish to thank Dr. James W. Jobling for many courtesies.

31 North State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KROTOSZYNER, CAULK, EISENDRATH AND BECK

Dr. G. G. Smith, Boston: I should like to ask Dr. Caulk what anesthesia he used in removing these ureterovesical cysts in the bladder.

Dr. V. D. Lespinasse, Chicago: In some of my experimental work I have tried to replace the ureter with a segment of vein or artery. When I have done that in the bloodvessels, taken a segment out and put it back, there has been a change, and the tissues have become fibrous. The endothelium seems to remain intact, but the muscularis degenerates almost completely, and there is a stiff, rigid tube conducting the blood. When a vein or an artery was used as a ureter I had great trouble in securing a tight union. The work was done in the summer time, in August, and all my results in that line were failures.

In regard to Dr. Krotoszyner's paper: In hemorrhage from the kidney I have used a powder (thrombokinase) that is made from blood-serum and from extracts from certain organs, lungs and livers. I first hash up the organs and make a watery extract, and then precipitate with acetic acid. I have used that on a papilloma of the bladder which I curetted, and then impregnated gauze with this powder and packed the bladder. The result was ideal; the bladder was dry when the packing was removed. One of my friends used it in a case of hemorrhage from the kidney. He made an emulsion and injected this into the pelvis of the kidney. The hemorrhage from the kidney stopped. Whether it was due to the powder or not I do not know. Locally, on birthmarks and external bleeding surfaces, this ferment works nicely.

After you have tried these local measures and have succeeded in checking the hemorrhage or removing the kidney, the patients have sustained an enormous loss of blood, and transfusion is often necessary. Deaths in these cases are due absolutely to loss of blood, and it is surprising what can be accomplished by replacing the blood. The patients respond quickly. No patient should be allowed to die without attempting a direct transfusion of blood.

Dr. D. N. Eisendrath, Chicago: I do not quite agree with Dr. Caulk in the statement that the majority of these ureterovesical cysts are of acquired origin. That may be his personal experience, but the number of reported cases of congenital and acquired ureterovesical cysts is not yet large enough to state absolutely whether the congenital or acquired form is the more frequent. Up to the present time we have always been inclined to think that the congenital type was the more frequent, because we have just begun to discover these things through the cystoscope and recognize their nature.

I reported a number of cases of congenital stenosis which were recognized clinically, and a number which we had observed in the dissection of fetuses. One case of the typical congenital variety was of special interest; that of a little girl of 12, who had an enormous congenital dilatation of the lower end of the ureter. She presented the typical symptom of urinary retention to which Dr. Caulk referred. It was thought that she had a large ovarian cyst. On examination we found a dulness above the pubes in the median line, and every attempt to catheterize her would be resented, so that we were not able to make an examination and postponed the cystoscopic examination, not suspecting that this swelling was retention of urine. I made a median incision and found a distended bladder, the ureters being about the size of the thumb and both kidneys being hydronephrotic sacs. When we opened the bladder it looked as if there were a bladder within a bladder. The internal meatus was not obstructed, but evidently the ureterovesical pouch had pressed against it and caused retention. The left ureteral orifice was represented by a little pit, and above this a very much distended ureter was found by incising the mucous membrane of the bladder. I had never encountered anything of this kind and did not know at first what to do, but decided on the method which Dr. Caulk mentioned. We united the mucous membrane of the bladder with the mucous membrane of the ureter, and in that way obtained a good-sized opening. Everything progressed well for three months; but we were obliged to intervene a second time on account of persistent high temperatures. We examined the kidney of the same side and found it full of little abscesses, namely, an ascending pyelonephritis. We removed this kidney. The patient lived five months and died of uremia. The necropsy specimen showed a marked hydronephrosis on the opposite side and a hydroureter. This case had been one of ureterovesical cyst that had filled the entire lumen of the bladder.

Dr. Krotoszyner's paper is timely. He speaks about one hemorrhage occurring eight hours after operation. That is very early. The majority of these cases of secondary hemorrhage are due to the fact that thrombi which have formed become dislodged, the vessels open up again and hemorrhage results. In one case we dissected the specimen and found that there was free communication between an open vein and the area into which the drainage tube had been inserted. This is one of the chief reasons for postoperative hemorrhage, the pressure of drainage material on the open segments of vessels.

Another point brought out was the importance of primary nephrectomy for infected kidneys, provided the other kidney is able to do the work of both. The fibrous adhesions around the kidney, which we have tried to save when it was extensively destroyed by pus infection, are firm and dense. If the opposite kidney can do the work, or if the case is not a bilateral one, a primary rather than a secondary nephrectomy ought to be done.

Dr. O. S. Fowler, Denver: I should like to discuss Dr. Krotoszyner's paper from the point of view of insufficient diagnosis of stone, or orientation of the stone in the kidney. While I was an intern I observed seven cases of exploratory operations of the kidney, or rather operations on the kidney for the removal of stone, in which the stone shadow had been demonstrated clearly and there were evidences in the urine of stone in the kidney. In all of these cases the kidney was laid wide open from one end to the other. My observation of these cases disgusted me with the method of the general surgeon in handling kidney-stone. If you orient the stone accurately in the kidney, know exactly what calix it is in, or if it is in the pelvis, then you are able in most cases to remove the stone without a mutilating operation on the kidney. You can make a small opening directly over it, or directly into the pelvis, or extending from the pelvis into the kidney substance. Therefore, if the diagnosis is made with the aid of the Roentgen ray and collargol, we can locate the stone definitely. I do not believe that there is such a thing as a proper exploratory operation on the kidney. These procedures should be called mutilations. In the seven cases that I observed there were five cases of secondary hemorrhage sufficient to demand the removal of the kidney, and two of the seven patients died. There were over 70 per cent. of secondary nephrectomies following secondary hemorrhage. That sort of result was entirely unnecessary. I do not doubt that some hemorrhage will follow occasionally if the stone is entirely oriented and the smallest amount of destruction of the kidney done at the time of the operation, but I do not believe that, as has been said, a primary nephrectomy is advisable or necessary in these cases if a proper diagnosis is made.

Dr. Hugh Cabot, Boston: It is only within a few years that our attention has been directed to this condition. The difficulty lies in determining which of these cases are primary and which are secondary, which are congenital and which acquired. My own experience has been limited to six or seven cases, in all of which there was secondary disease of the kidney on one or both sides. We recognize that obstruction of some kind is at the bottom of the vast majority of our kidney lesions of an inflammatory nature, and this seems to me to explain the high percentage of kidney involvement in these cases of cystic change in the lower end of the ureter. I am inclined to regard them as due largely to a congenital fault of some kind, in many of which secondary changes in the kidney overshadow the changes in the ureter in such a way as to create the impression that they are acquired.

I was interested in Dr. Caulk's operation, because it is the only endovesical operation likely to give relief. I think that he has correctly estimated the slitting of the ureter as a temporary matter. The suprapubic operation is applicable to the more extensive cases. In one of my cases the cystic dilatation was nearly 3 inches in diameter, and I do not think that I could have managed that with an intravesical operation.

With Dr. Krotoszyner's paper I am largely in agreement. Dr. Fowler has laid stress on an important point; we should know where the stones are before undertaking their removal. In cases in which extensive damage has been done to the kidney, we should consider, and in most cases I believe should decide on, a primary nephrectomy. These pus-sacs full of stones are not of value to the patient. They are a constant source of worry and discomfort, and not an uncommon source of hemorrhage. I think that the danger to which the patient is exposed by keeping an old kidney warrants its removal. Our serious difficulty must come in cases of bilateral stones with extensively damaged kidneys on both sides. In a few of those cases nephrolithotomy will be necessary, but that is the only class of cases in which it is justifiable. The operation of pyelotomy is best in most cases. There are a few cases in which a stone is in the upper calix and can be reached through the cortex. I believe that when we do a nephrolithotomy through any considerable amount of kidney tissue we shall get hemorrhage, and the prevention lies in the careful study of the case and the adoption of better operative methods.

Dr. Louis E. Schmidt, Chicago: I agree with what Dr. Cabot and Dr. Eisendrath said with regard to the origin of these cysts, in spite of the fact that the cases reported by Dr. Caulk appeared to have been acquired. I am inclined to believe in an open operation, a thorough removal and the slitting up of the ureteral orifice. In one case in which I did this operation, the ureteral orifice remained wide open and gaping months afterwards without any apparent discomfort to the patient. Naturally, one must first consider whether infection is present or not, because the operative procedure might be entirely different. These intravesical operative procedures are naturally minor in character, but I do not believe that they can reach an obscure condition so thoroughly as the open operation does.

I am in perfect accord with what has been stated in Dr. Krotoszyner's paper. Hemorrhages undoubtedly follow as soon as eight hours after operation. It is possible that only a few have been recorded, but I know of quite a few in which hemorrhage has taken place within twenty-four hours after the operation. I am inclined to believe that in those cases it is due to an error in the operative technic. Hemorrhages that occur days later are undoubtedly due to secondary conditions that follow operative interference. I am also in accord with what Dr. Cabot says, that when the question of operative interference arises, in well-diagnosed conditions, if it is possible to do a pyelotomy, many of these hemorrhages will be avoided, but the great difficulty comes in cases in which we are dealing with double-sided lesions. Three weeks ago I was obliged to operate on a person for stone with a badly infected kidney, on whom I had done a nephrotomy five or six years previously. At the time of the operation there was severe hemorrhage, but on thorough suture the hemorrhage stopped completely. In a case of this kind in which drainage is absolutely necessary, the operative interference is a matter of considerable importance. It is out of the question that a man could do a nephrectomy in a case of this kind; so there are certain chances that you must take when you are operating on a person with one kidney, and the same thing applies when both kidneys are badly damaged.

Dr. William T. Belfield, Chicago: In a fairly large experience I have never seen serious hemorrhage follow nephrolithotomy. This good fortune may be due in part to the fact that I insert drains to, but never into, the kidney. For it is now established that pressure of a tube tends to erode blood-vessels.

Dr. John R. Caulk, St. Louis: I am thoroughly in accord with what Dr. Belfield has said, not in regard to cases of high-grade calculous pyonephrosis, but cases of renal stone in comparatively clean kidneys. I do not see the advantage of draining a kidney of that type. I have had quite a number of nephrolithotomies, and I have been fortunate enough not to have had a primary hemorrhage, and I believe that it is due to the fact that I have not put a tube in the pelvis of the kidney. I believe that even after bisecting the kidney, if we can get thorough approximation with mattress sutures we shall not often have hemorrhage. I cannot see the advantage of using a drainage-tube in a comparatively clean kidney.

Of course, pyelotomy is the method of choice with stones which are accessible and which can be removed easily through the pelvis, but with a branching calculus which is filling the calices, without much pelvic dilatation, I do not see that pyelotomy can offer a good chance, and I believe that if a clean nephrotomy is done and the kidney opened as little as possible (enough for exposure) and closed thoroughly, the chances of primary hemorrhage will be slight and the best results will be obtained. Of course, none of us can guard against secondary bleeding.

Dr. Hugh H. Young, Baltimore: Dr. Caulk, I think, has brought up an interesting field of surgery. His suggestion that my cystoscopic rongeur might be used has been carried out in one case of an intermittent balloon about the size of a cherry. We are able to grasp the whole thing and bite it off. The patient had previously had severe attacks of pain and was entirely relieved by that destruction of the cyst. I think that it amounts to practically the same thing as an excision.

It has occurred to me that, in transplantations of the ureter, the preservation of life of the part of the ureter that projects into the bladder or rectum will depend a great deal on whether we try, in doing the transplantation, to preserve the artery which passes along the ureter. Many years ago in transplanting the vas deferens and bringing it out into the groin for treatment we found that, if we stripped it closely, it always sloughed, whereas in cases in which we preserved the artery it would remain alive, even when it projected an inch. It occurs to me that, in one of his cases in which the end of the ureter sloughed and the other did not, he stripped one too closely. Certainly, in the bladder, it is generally entirely satisfactory to leave the ureter free, and it does not seem to make any difference whether we cut it obliquely, split it up, or cut it squarely off.

Dr. Krotoszyner's remarks on hemorrhage are extremely interesting. If we could have a few more papers in which an honest portrayal of our troubles and bad results could be given, it would do much good. A man, not in good condition, in whom a branching stone was removed from the cortex of the kidney, had recurrent hemorrhages for four or five weeks after the operation. The wound had been abundantly packed, but every time we removed the packing he had a hemorrhage. The last hemorrhage, four or five weeks after the operation, was so severe that it was out of the question, apparently, to carry out a nephrectomy, and we took advantage of the presence of his daughter and did a transfusion. That immediately stopped the hemorrhage. Although the patient had a violent chill and a temperature of 108 F., he recovered rapidly.

In a recent pyelotomy which I performed, the stone, which was small, had a hook-like process which passed up around one of the vessels, and a fearful hemorrhage occurred when we were removing the stone. It was impossible to reach the vessel by clamp, so I ran in a liver-needle and obtained about half an inch of kidney substance and the hemorrhage stopped.

Dr. John R. Caulk, St. Louis: In regard to anesthesia: In the first case the slitting operation was done under cocain. The second operation on the same person, that is, the resection, was done without any anesthetic, and the third was done without any anesthetic at all. As a matter of fact, I have seldom used cocain in the last few years. You can get along just as well without any anesthetic. If you use an anesthetic and are a bit rough, you traumatize the urethra, and, if the catheterization or operative procedure lasts any time, you are worse off, because edema follows, whereas if you use no anesthetic you are more gentle. I do not believe in using an anesthetic unless there is a very irritable urethra, as in tuberculous cases, although I have catheterized ureters through several tuberculous bladders without any anesthetic.

It is pretty hard to state in the case of an elderly person whom you see for the first time with an inflammatory process whether or not it is congenital. But I was led to believe that these cases were acquired, as there was a definite pathologic inflammatory condition in the lower ureter, which, of course, might be secondary. In two cases I know that it was an acquired anomaly, because in the first case, the one following the ureterovesical transplantation, I performed cystoscopy on the patient, in order to determine where the leak was, two months before I found the cyst. At that time there was no cyst, but following the transplantation the cyst developed; in other words, it was a definitely acquired condition. The other patient was one who was examined by a competent cystoscopist, who said that the bladder was suspicious of tuberculosis, but that she could find no tubercle bacilli. At this time there was no ballooning at all, but there was an ulcer around the right ureteral orifice. When I saw the case there was no ulcer, but a scar and the ballooning, which the doctor said she was confident were not there at the time of her examination.

I have done the slitting operation only once, and the condition immediately recurred. The endovesical operation for resection of the balloon is easy in women, if small instruments and a straight cystoscope are used. The results in these two cases have convinced me that they might be quite lasting—in one case one year and in one case two years. My experience in plastic operations on the ureter and bladder has not been particularly good, and I believe that, if one denudes a large area and allows it to granulate slowly, his chances of recontraction are not much greater than following an open operation, and, if he should have trouble later, he can do the major work, but let him give the patient a chance for the minor procedure first.

Dr. M. Krotoszyner, San Francisco: The wide discussion proves that the risks connected with nephrolithotomy are beginning to be recognized. Faulty surgical technic, I am sure, is not responsible for hemorrhage after nephrotomy, for accidents similar to my own are reported by the best technicians from all over the world. I fully coincide with Dr. Fowler in his demand for a careful preoperative study of every case of nephrolithiasis. A nephrectomy is, of course, only permissible on the basis of a painstaking cystoscopic and functional investigation, but wherever, under such conditions, a pyonephrotic stone-kidney was removed by me, the immediate and remote results of the operation were exceedingly gratifying.

STUDIES OF THE NECROSIS FOLLOWING INJECTIONS OF SALVARSAN AND NEOSALVARSAN *

H. E. ROBERTSON, M.D.
Associate Professor of Pathology, School of Medicine, University of Minnesota
MINNEAPOLIS

When salvarsan was introduced as a specific cure for syphilis its administration by deep intramuscular injections was strongly recommended. Wolbarst,[1] in 1912, stated that Ehrlich believed that "salvarsan is essentially an intramuscular injection," and if pain could be avoided this method would be the one of choice. Meltzer[2] showed that the intramuscular injections were absorbed more rapidly than the subcutaneous, but recommended the sacrospinal muscle rather than the gluteal as being less apt to cause pain and other complications. It was soon apparent, however, that the intramuscular injection of salvarsan almost uniformly produced intense pain; the wound healed slowly, and often was followed by large sloughing areas of necrosis which were extremely resistant to all attempts at aiding or producing complete repair. K. Martius[3] concluded that this method produced necrosis in every case in which it was used. Buschke[4] also stated the same fact and called attention to the numerous examples of slow healing necroses occurring in the gluteal muscles following their injection by salvarsan. Wise[5] proved that these lesions may follow the use of acid, alkaline or neutral solutions of the drug and to a lesser extent the use of paraffin or oil suspensions.

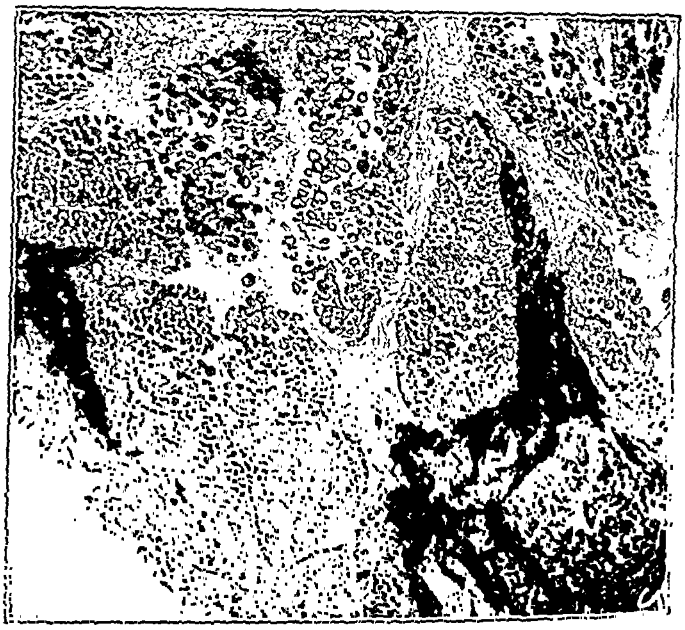


Fig. 1.—Salvarsan; eleven hours; necrosis; leukocytic infiltration. Dark mass represents salvarsan pigment. × 41.

---

* Read in the Section on Pathology and Physiology of the American [illegible] at the Sixty-Fourth Annual Session held at [illegible] 913.

[1] [illegible] c., 1912, lxxxii, 148.

[2] Meltzer: Berl. klin. Wchnschr., 1911, xlviii, 413.

[3] Martius, K.: München. med. Wchnschr., Dec. 29, 1910.

[4] Buschke: Berl. klin. Wchnschr., Jan. 1, 1911.

[5] Wise, New York Med. Jour., 1911, xciii, 820.

The opinions quoted show in fact the almost universal experience of those who have used the drug by this method, and these facts have caused most clinicians to advise that the intramuscular route be abandoned in favor of the intravenous.

Lovejoy[6] and Sutton[7] each described the histologic appearances of tissue removed from the site of an intramuscular injection a few months later. They both found granules of salvarsan in the tissue and the smaller vessels and lymph-vessels blocked by these granules. To this fact they attribute the failure to heal. They each emphasized the absence of lymphoid cell infiltration.

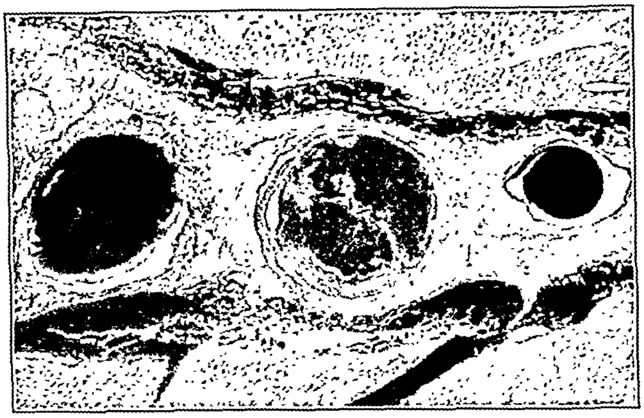


Fig. 4.—Salvarsan; three days; thrombosis of vessels; salvarsan pigment at margins. × 41.

My work leads me to question the accuracy of these observations on the location of the salvarsan particles, which have never been found blocking the vessels, and I have also noted that lymphoid-cell infiltration is uniformly present in the later stages of the lesion.

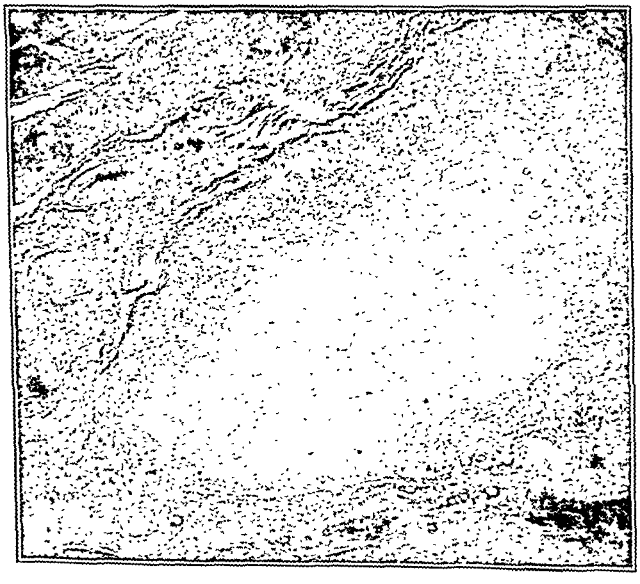


Fig. 5.—Salvarsan; fifty-one days; localized area of necrosis with zone of leukocytes. × 41.

Tomaszewski[8] experimented on pigeons by injecting alkaline solutions, neutral emulsions and oil suspensions of salvarsan into the muscles. In all cases diffuse areas of necrosis appeared on the first day. Later these became walled off by a zone of leukocytes and then by newly forming connective tissue. Only a scar remained at the end of seventy days.

These results were fully confirmed by my experiments.

Slusher and Burchell[9] demonstrated that salvarsan has very weak if any antiseptic properties and that therefore strict aseptic precautions are necessary in its administration.

In spite of these well-recognized sequelae, however, the necessity of acquiring some degree of experience and technical skill has often proved a bar to the application of the intravenous method in the hands of many physicians, and, consequently, when the preparation called neosalvarsan was announced, its ready solubility in water and ease of preparation gave some ground for the belief that the easier method of intramuscular administration would again become the method of election in the majority of cases. This hope has not been fulfilled, although fewer reports of muscle necrosis are appearing in the recent literature, probably owing to the fact of the widespread adoption of the intravenous method.

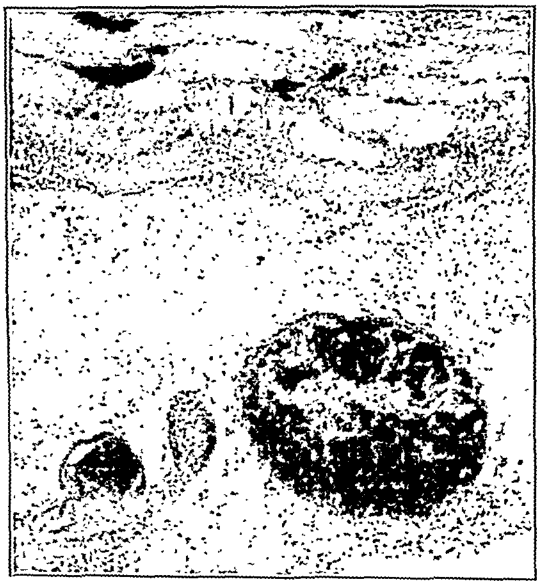


Fig. 6.—Neosalvarsan; eleven hours; thrombophlebitis with degeneration of muscles. × 210.

Swift[10] while investigating the comparative absorption of arsenic following intramuscular injections of salvarsan and neosalvarsan found that both uniformly produced necrosis in the muscles of rabbits, but that salvarsan always caused the more intense reaction.

My own work was carried on for the purpose of making intensive studies of this peculiar type of necrosis and of observing (1) the effects of salvarsan on the muscles of animals compared with its effects on the muscles of human beings, (2) the effects of salvarsan compared with those of neosalvarsan, and (3) the effects of both of these drugs compared with those produced by deep injections of the more commonly employed mercurial preparations still used in the treatment of syphilis.

In the preparation of the salvarsan and neosalvarsan solutions for injection the directions given in the circulars accompanying the drug were closely followed and the size of the dose was governed by the body-weight of the animals compared with that of an average man. At various times the amount of the drug was purposely slightly increased or diminished without, as far as could be observed, altering appreciably the extent or character of the lesion produced. Dogs were used for all the animal experiments and injections were made into the extensor muscles of the thigh in the hindquarter and the corresponding muscles of the shoulder in the forequarter. All injections were made only after partial narcosis by subcutaneous administration of morphin sulphate had been produced. Aseptic precautions were observed throughout.

---

[6] Lovejoy: Jour. Cutan Dis., 1911, xxix, 383.
[7] Sutton: Boston Med. and Surg. Jour., 1911, clxv, 946.
[8] Tomaszewski: Charité-Ann., 1911, xxxv, 569.
[9] Slusher and Burchell: New York Med. Jour., July 15, 1911.
[10] Swift: Jour. Exper. Med., 1912, xvii, 83.

The results of experiments with salvarsan and neosalvarsan are summarized in Table 1. This series developed several interesting facts:

1. The lesion in these cases consists of hemorrhage and necrosis with edema which develops almost immediately after the injection. Leukocytes early invade the tissue and tend to form a zone around the necrotic area.
2. Salvarsan invariably leaves a deposit of insoluble yellow pigment which acts in every respect as a comparatively inert foreign body.
3. There is no appreciable difference between the severity of the lesions which appear after the intramuscular injections of either salvarsan or neosalvarsan. If anything, neosalvarsan tends to give a slightly more diffuse zone of destructive inflammation.

Reparative processes begin in about a week, but the absorption of the necrotic material proceeds very slowly, and usually is not completed until a period of at least two months has elapsed. Infiltration of phagocytic endothelial cells and lymphocytes occurs in the later stages. Thrombosis of the venous branches is a very common finding and undoubtedly accounts for the tendency to sloughing and slow healing so often observed in human cases. Accidents, such as large hemorrhages and abscess formation, are possible. Although no data were secured as to bacterial infection, I do not believe that this is a common complication. When the injection accidentally was made into the intermuscular fascias, necrosis and other inflammatory phenomena were much less prominent, and recovery was correspondingly more prompt.

TABLE 1.—SALVARSAN AND NEOSALVARSAN IN MUSCLE

o.	Animal	Preparation	Site of Injection	Duration After Injection	Gross Appearances	Microscopic
1	AE-13-73	Salvarsan	L. shoulder	2⅓ hr.	Local hemorrhage; edema; yellow pigment from drug.	Hemorrhage; emigration of leukocytes; edema; muscle-fibers swollen and vacuolar with irregular staining and loss of striations; salvarsan pigment.
2	AE-13-73	Neosalvarsan	R. shoulder	2⅓ hr.	Ditto, except pigment is absent	Leukocytes more numerous; degeneration of muscles more pronounced.
3	AE-13-73	Salvarsan	L. thigh	11 hrs.	Wide-spread edema; area of hemorrhage and necrosis with yellow pigment.	Hemorrhage, necrosis and degeneration more advanced; much salvarsan pigment.
4	AE-13-73	Neosalvarsan	R. thigh	11 hrs.	Ditto, except pigment is absent.	Di [illegible] ent and veins [illegible] formation.
5	AE-13-115	Salvarsan	R. shoulder	1 day	Similar to No. 3.	Le [illegible], otherwise re- [illegible]
6	AE-13-115	Neosalvarsan	L. shoulder	1 day	Necrosis and hemorrhage more marked than in No. 5.	Hemorrhage and necrosis very prominent; only slight leukocytic infiltration.
7	AE-12-7	Salvarsan	R. shoulder	2 days	Similar to No. 3.	Similar to No. 3.
8	AE-12-7	Neosalvarsan	L. shoulder	2 days	Similar to No. 6.	Extensive leukocytic infiltration; otherwise similar to No. 6.
9	AE-12-171	Salvarsan	L. thigh	65 hours	Edema less pronounced; hemorrhage and necrosis more localized; pigment present.	Beginning formation of zone of leukocytes; otherwise like No. 3.
10	AE-78-171	Neosalvarsan	R. thigh	65 hours	Similar to No. 9, except pigment is absent.	Similar to No. 9 except pigment is absent.
13	AE-13-115	Salvarsan	R. thigh	3 days	Similar to No. 9.	Similar to No. 9.
14	AE-13-115	Neosalvarsan	L. thigh	3 days	Development of abscess.	Extensive necrosis and leukocytic infiltration.
15	AE-12-7	Salvarsan	R. thigh	6 days	Similar to No. 9.	Localization of exudate; pigment present; beginning proliferation of connective tissue.
16	AE-12-7	Neosalvarsan	L. thigh	6 days	Similar to No. 10.	Old hemorrhage; proliferation of connective-tissue cells; localization of exudate about necrosis; no pigment.
17	AE-12-170	Salvarsan	L. shoulder	7 days	Extensive necrosis; abscess pockets.	Large areas of necrosis; masses of leukocytes; no bacteria found.
18	AE-12-170	Neosalvarsan	R. shoulder	7 days	Similar to No. 16.	Similar to No. 16.
19	AE-12-157	Salvarsan	R. shoulder	15 days	Large old hemorrhage; necrosis and pigment.	Localization of exudate; new connective tissue with fibroblasts and capillaries; many large mononuclear cells containing both salvarsan and old blood pigment; old necrotic muscle fibers surrounded by giant cells.
20	AE-12-157	Neosalvarsan	L. shoulder	15 days	Necrosis of fascia and adjoining muscle; induration.	Fresh fibrosis with thrombosis of several large veins; masses of leukocytes.
21	AE-12-170	Salvarsan	L. thigh	18 days	Localized area of necrosis with pigment and indurated margins	Similar to No. 19.
22	AE-12-170	Neosalvarsan	R. thigh	18 days	Like No. 2 without pigment.	Zone of necrosis surrounded by zone of fresh fibrosis and at margins apparent proliferation of muscle nuclei.
23	AE-12-152	Salvarsan	R. shoulder	23 days	Similar to No. 21.	Similar to No. 19.
24	AE-12-152	Neosalvarsan	L. shoulder	23 days	Similar to No. 22.	Similar to No. 22 with addition of numerous lymphocytes.
25	AE-12-151	Salvarsan	R. thigh	24 days	Similar to No. 21.	Giant-cell formation around masses of pigment; phagocytic large mononuclear cells; advancing fibrosis.
26	AE-12-151	Neosalvarsan	L. thigh	24 days	Induration of fascia.	Fresh fibrosis in fascia; no changes in muscle.
27	AE-12-152	Salvarsan	R. shoulder	32 days	Pigment in fascia.	Fresh fibrosis; chronic changes in blood-vessel walls; lymphocytic infiltration; salvarsan pigment.
28	AE-12-152	Neosalvarsan	L. shoulder	32 days	Local area of necrosis with indurated margins.	Area of necrosis with zone of exudate and organization; arteriosclerosis; thrombosis of some vessels.
29	AE-12-172	Salvarsan	L. thigh	51 days	Old small area of necrosis.	Dense fibrosis; infiltration of lymphocytes; pigment masses in cells and tissue spaces.
30	AE-12-172	Neosalvarsan	R. thigh	51 days	Injection in fascia; few if any traces.	A few degenerated muscle fibers; otherwise no lesion.

4. Variations of the amount of the drug injected from one-half to twice the amount advised do not appreciably affect the extent of the lesion.

5. No changes in the general health of the animal could be observed, and there was no evidence of any marked tenderness at the site of the injections and no apparent limitation of motion unless abscesses developed.

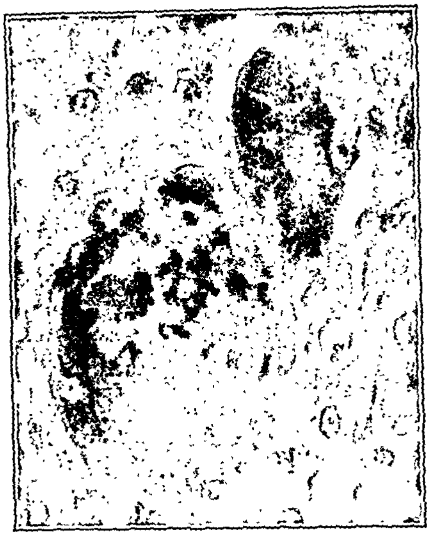


Fig. 8.—Neosalvarsan; thirty-two days; giant cells around muscle fibers. × 1300.

For purposes of comparison a second series (Table 2) was undertaken, using the mercurial preparations which are commonly employed for intramuscular injection in cases of syphilis. As may be seen in the table, the reaction is very similar, at least in its early stages, to that obtained with salvarsan and neosalvarsan. The results are, however, probably not quite so severe. Controls with distilled water and sodium bicarbonate show that this is an inflammation produced chemically rather than mechanically.

The results of injection of salvarsan into the muscles of human beings were further confirmed by the following two cases which came to necropsy:

Case 1.—Mrs. W., aged 38, suffering from a supposed syphilitic destructive necrosis of the nasopharyngeal passages, received injections of salvarsan into the gluteal muscles of both sides eleven days before death. At the post-mortem examination these muscles showed areas of necrosis and hemorrhage, brown, and firm in consistence. Cross-sections of the affected muscle suggested the appearance of a large adrenal gland with brownish-yellow peripheries and grayish-white centers. The condition in the nose proved to be a destructive diffuse carcinoma with gangrene.

Microscopically, the lesion closely simulated that seen in the muscles of dogs at the end of one week. Extensive necrosis with degeneration of muscle bundles, edema and leukocytic infiltration were prominent features. Masses of brownish salvarsan pigment were abundant. Beginning proliferation of connective-tissue cells could be seen at the margins of the lesion. Several of the veins showed thrombosis.

Case 2.—Mr. B., aged 40, suffered from a typical clinical attack of syphilitic myelitis. His blood gave a positive Wassermann reaction. Salvarsan was injected into the muscles of the chest wall four months before death. At necropsy, small, firm, scar-like masses of tissue were found at site of injections. These showed deposits of yellowish pigment. The typical lesions of a diffuse myelitis were clearly demonstrated.

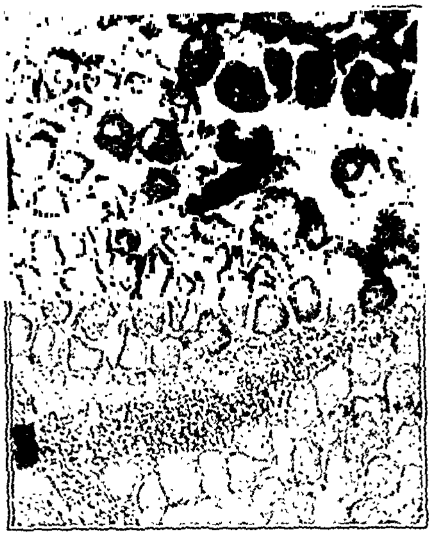


Fig. 9.—Mercuric salicylate; three days; disorganization of muscle fibers; leukocytic infiltration. × 410.

Microscopically, there was extensive overgrowth of young connective tissue. Muscle fibers appeared in varying stages of degeneration. The tissue was diffusely infiltrated by lymphocytes and plasma-cells.

TABLE 2.—MERCURY PREPARATIONS IN MUSCLE WITH CONTROLS

No.	Animal	Preparation	Site of Injection	Duration After Injection	Gross Appearances	Microscopic
32	AE-13-6	Mercuric chlorid	R. shoulder	3 days	Areas of hemorrhage and necrosis; edema.	Hemorrhage; diffuse necrosis; degeneration of muscle fibers; infiltration of leukocytes.
33	AE-13-6	Mercuric cyanid	R. thigh	3 days	Hemorrhage in fascia.	No sections.
34	AE-13-6	Mercuric succinimid	L. shoulder	3 days	Similar to No. 32.	Similar to No. 32.
35	AE-13-6	Mercuric salicylate	L. thigh	3 days	Extensive hemorrhage, necrosis and edema.	Similar to No. 32.
36	AE-12-6	Mercuric chlorid	R. shoulder	5 days	Edema and necrosis.	Beginning localization of exudate around areas of necrotic muscle.
37	AE-12-6	Mercuric cyanid	R. thigh	5 days	Hemorrhage, edema and necrosis.	Hemorrhage; necrosis of muscle; no evidence of leukocytic invasion.
38	AE-12-6	Mercuric succinimid	L. thigh	5 days	Hemorrhage and necrosis.	Necrosis; a few leukocytes surrounding degenerated muscle fibers; basic staining masses of pigment.
39	AE-12-6	Mercuric salicylate	L. shoulder	5 days	Edema and necrosis.	Extensive necrosis; leukocytic infiltration; masses of basic staining pigment; beginning thrombosis of veins.
11	AE-12-171	5 per cent. sodium bicarbonate	L. shoulder	65 hours	No gross lesion.	No lesion.
12	AE-12-171	Distilled water	R. shoulder	65 hours	No gross lesion.	No lesion.

SUMMARY

1. Intramuscular injections of salvarsan and neosalvarsan uniformly produce severe destructive lesions which always heal slowly and often are complicated by hemorrhages and sloughing abscesses.

2. The severity of the reaction from the use of either drug is essentially the same.

3. Salvarsan always leaves an insoluble pigment which acts as a foreign body.

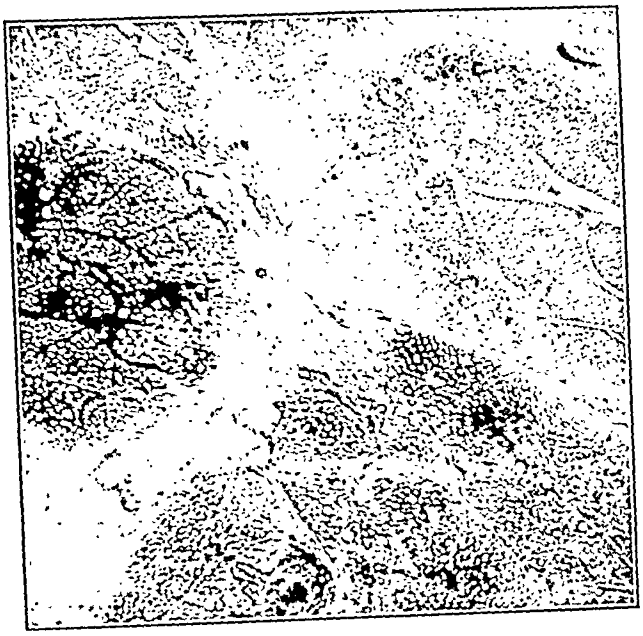


Fig. 10.—Mercuric cyanid; five days. Hemorrhage and necrosis. × 41.

4. Mercurial preparations when injected into muscles produce similar lesions.

5. The lesions produced by experiments on animals and in human beings are similar in every respect.

6. The use of such preparations in this manner in certainly the majority of cases is an unjustifiable procedure.

DECIDUAL REACTION IN THE APPENDIX IN INTRA-UTERINE PREGNANCY

GEORGE W. OUTERBRIDGE, M.D.
Assistant Instructor of Surgical Pathology in the University of Pennsylvania, Department of Medicine; Outpatient Surgeon and Pathologist to the Gynecean Hospital
PHILADELPHIA

One of the most interesting phenomena observed in connection with both normal and ectopic gestation is the occurrence at various locations outside the uterus of tissue having a histologic appearance nearly or quite identical with that of decidua. It has been conclusively shown that the normal, intra-uterine decidua represents nothing more nor less than a transformation of the endometrial stroma, as a result of which the majority of the connective-tissue cells have become much swollen, and have assumed a round, oval or more or less polygonal shape. The cytoplasm often contains vacuoles, probably of glycogen; the nuclei also are somewhat swollen and vesicular, and often occur two or three to a single cell. The cells lie close together, but are separated by fine fibrous trabeculae; scattered among them are usually seen a few small, deeply staining, unchanged connective-tissue cells, the whole structure presenting a very characteristic and, for the most part, easily recognized appearance. The occurrence during pregnancy, at various points of the pelvic peritoneum, of small clumps and larger masses of cells possessing precisely similar characteristics has been observed and described by numerous authors. Located always just beneath the surface epithelium or endothelium, these extra-uterine decidual masses are found most frequently on the posterior surface of the uterus, at the bottom of the pouch of Douglas and on the anterior surface of the rectum; and somewhat less often on the anterior surface of the uterus, the posterior wall of the bladder, the surface of the tubes and small intestines and in the outer layers of the ovarian stroma; they have also been reported a few times in the omentum, and at least once each in a parovarian cyst, the vagina and the appendix.

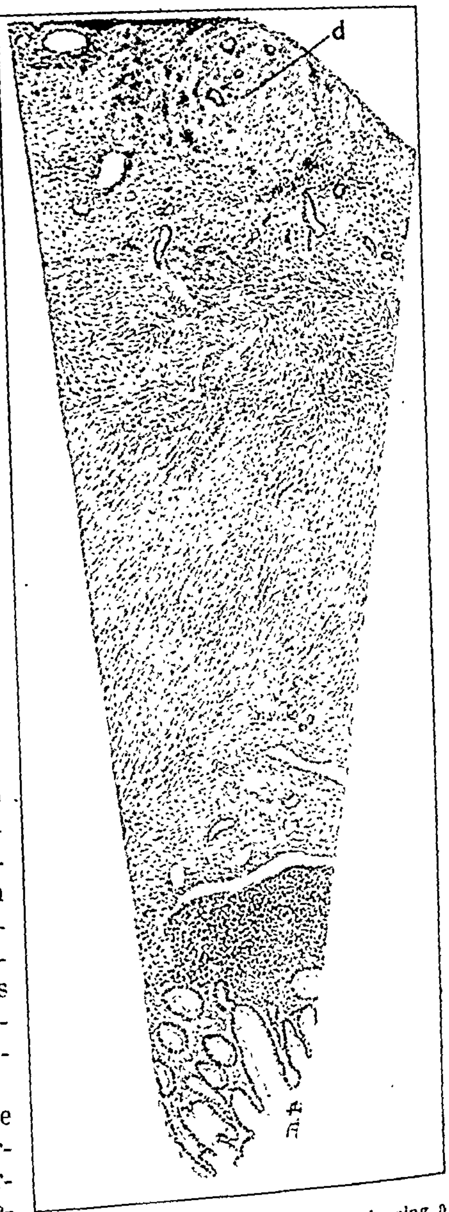


Fig. 1.—Low-power drawing showing a group of decidua-like cells (*d*) in the thickened and much-inflamed serous coat of the appendix.

First described by Walker[1] in connection with abdominal pregnancy, later by Dobbert[2] in a case of tubal pregnancy, the occurrence of this extra-uterine decidua coincident to normal, intra-uterine gestation was first demonstrated in 1895 by Pels-Luesden,[3] whose finding has since been confirmed by Schmorl,[4] Lange[5] and numerous other investigators. There can be no question of these little nodules representing anything in the nature of metastases from the endometrial decidua; they arise by a transformation *in situ* of the subserous connective-tissue cells, analogous to that occurring in the uterine mucosa, and it is almost always possible to demonstrate numerous intermediate stages between the small, unchanged, fixed connective-tissue cells and the large, fully developed, decidua-like ones.

So far as I have been able to ascertain, the occurrence of this reaction in the appendix has been observed in but one instance, reported by Hirschberg[6] in 1905. His patient was a 38-year old multipara who was operated on for ectopic gestation, the right pregnant tube, with adherent appendix, being removed. Examination of the latter organ showed a marked periappendicitis, due, the author believed, to irritation from the blood discharged into the pelvis from the pregnant tube; in the deeper portions of the thickened serosa of the appendix were numerous large groups of typical decidual cells whose origin was evidently to be referred to the connective-tissue cells of that locality. Although in this instance the appendix was closely adherent to the gestation sac, Hirschberg ventured the opinion that the presence of such adhesions is not to be considered a sine qua non for the occurrence in the former of decidual reaction, but that this might, under some circumstances, take place also in connection with a left tubal pregnancy. That he was right, at least in the first part of this assumption, and that, moreover, decidual reaction can occur in the non-adherent appendix in connection with normal, intra-uterine pregnancy, is shown by the following case:

---

[1] Walker: Der Bau der Eihäute bei Graviditas abdominalis. Virchows Arch. f. path. Anat., 1887, cvii, 72.

[2] Dobbert: Beitrag zur Anatomie der ektopischen Schwangerschaften, Virchows Arch. f. path. Anat., 1891, cxxiii, 103.

[3] Pels-Leusden: Beitrag zur pathologischen Anatomie der Puerperaleklampsie, Virchows Arch. f. path. Anat., 1895, cxlii, 1.

[4] Schmorl: Ueber grosszellige (deciduaähnliche) Wucherung auf dem Peritoneum und den Ovarien bei intrauteriner Schwangerschaft, Monatschr. f. Geburtsh. u. Gynäk., 1897, v, 46.

[5] Lange: Beitrag zur Frage der Deciduabildung in der Tube bei tubarer und intrauteriner Schwangerschaft, Monatschr. f. Geburtsh. u. Gynäk., 1902, xv, 48.

History.—Mrs. S., aged 37, was delivered of a full-term, living child under the care of her family physician, who had not seen her for several days before being called to attend her in active labor. He noticed that she seemed to complain somewhat excessively of pain and that her abdomen was rather tender, but otherwise the delivery was entirely normal. On revisiting the patient ten hours later, however, the doctor found her in very bad condition; the abdomen was enormously distended, and she was vomiting large quantities of stercoraceous material. As it was evident that some serious intra-abdominal condition was present, demanding immediate interference, she was removed to the Gynecean Hospital, where she was operated on by Dr. Theodore A. Erck about fourteen hours after delivery.

Operation and Result.—When the abdominal cavity was opened, a considerable quantity of free pus was found; the surface of the intestines was congested, dull, and in places covered with lymph, but there were practically no adhesions, the process being apparently too acute. The appendix was quickly located; it appeared acutely inflamed, but there were no evidences of adhesions. It was removed, and the wound closed with free drainage, but the patient was in a desperate condition throughout, and died early the next morning. No necropsy was performed.

Laboratory Report.—Grossly, the appendix[7] appears markedly inflamed and considerably thickened, measuring 6 cm. in length by 1 cm. in diameter; it is covered with lymph in places, but does not show any point of perforation. Microscopically, the wall is seen to be thickened throughout, and to be the seat of an acute inflammatory process, diffuse in type, but much more marked in the serous and mucous than in the muscular coats. The glands of the mucosa are dilated with mucus, and there is considerable infiltration, chiefly with eosinophils, throughout this coat. A round-cell infiltration of moderate degree is present in the submucous and muscular coats, but in the greatly thickened serosa the cellular infiltration becomes most intense, consisting here in large part of polymorphonuclear neutrophils, in addition to small round cells and eosinophils. There are numerous markedly congested capillaries just beneath the surface.

Scattered throughout this greatly thickened subperitoneal tissue are numerous groups of large, polygonal cells, which at once attract attention from their dissimilarity to anything ordinarily seen in the appendix. In some areas these large, very prominent cells show a more or less diffuse arrangement, making up practically the entire tissue, but for the most part they are collected into fairly definite groups, the majority of which are situated beneath the surface, one or two, however, projecting slightly above it. In the center of a few of the cell-groups are a number of good-sized, engorged capillaries, but in the majority these are wanting, the cell masses being for the most part compact, and showing no relation to blood-vessels. By suitable staining methods, a delicate fibrous network can be made out between most of the cells, and the entire arrangement is practically identical with that of ordinary decidua, although the development is nowhere so extensive as that regularly found in the endometrium (Figs. 1 and 2).

The situation of these cells stamps them as having arisen from the connective-tissue cells of the greatly thickened stroma of the serosa; nowhere is there any tendency for them to spread out in a sheet immediately beneath the surface, as would surely be the case had they arisen from the surface endothelium. A sharp differentiation between the decidua-like cells on the one hand and endothelial cells of the peritoneum on the other, which Hirschberg was able to demonstrate in his case, is impossible in the present instance, however, as the endothelium has been practically destroyed, and replaced by inflammatory tissue and lymph. The assumption that the large cells owe their origin to the inflammatory condition alone, irrespective of any influence from the pregnancy, does not seem justified, in view of their dissimilarity to anything ordinarily seen in connection with the various forms of appendiceal inflammation, but it is undoubtedly true that the presence of the active inflammatory process may have been a contributing factor, as will be pointed out later on. It certainly seems more probable that the presence of these cells in the appendix represents a true decidual reaction on the part of its stroma.

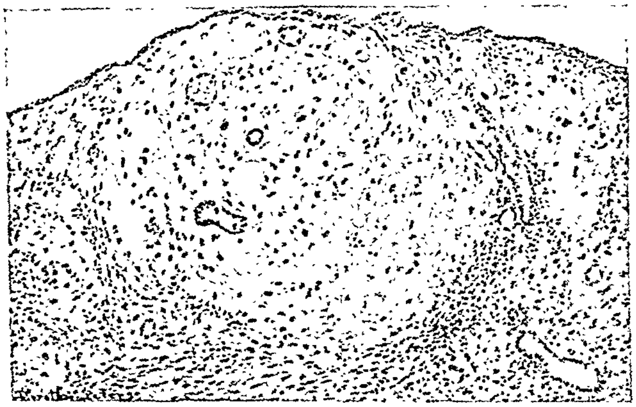


Fig. 2.—Higher-power drawing of the same group of cells.

In order to determine whether the apparent infrequency of decidua formation in the appendix might not possibly be due to its occurrence having been overlooked, I have gone through the collections of the laboratory of gynecologic pathology of the University of Pennsylvania and of the pathologic laboratory of the Gynecean Hospital, examining all appendixes which have been removed during the past few years in conjunction with ectopic or normal pregnancy. Owing to the fact that cases in which the appendix is removed under these circumstances are not very common, the series comprises but twenty-three specimens, one of which occurred in connection with an intra-uterine pregnancy, all the others with some form of tubal gestation. With but one or two exceptions, at least two sections of each appendix, taken from different portions of the organ, were carefully examined. Included in the series were appendixes which had been densely adherent to the tubal mass, and others in which no such adhesions had been present; there were normal appendixes, and specimens showing all the common types of inflammation, ranging from slight catarrhal or interstitial changes to partial or complete obliteration or acute diffuse processes. In a few instances a marked periappendicitis was present, fully as intense as that in the case described, but in no single instance was anything seen even remotely suggestive of decidua formation. In one case, scattered about the outer edge of the longitudinal muscular coat, were a few small groups of two or three large cells each, but these did not resemble in the least the structure of decidual tissue, and would probably have passed unnoticed, had not the attention of the examiner been directed especially to the discovery of any enlarged or swollen cells; they appeared to represent merely an inflammatory reaction of the endothelial cells of small lymph-vessels, such as is not infrequently seen under various conditions.

---

[6] Hirschberg: Deciduale Zellbildung am Wurmfortsatz bei Tubenschwangerschaft (Periappendicitis decidualis), Arch. f. Gynäk., 1905, lxxiv, 620.

[7] Specimen was demonstrated before the Pathological Society of Philadelphia, Feb. 27, 1913.

While this series is, of course, too small to permit of any wide generalization, it coincides as far as it goes with the experience of other investigators. Hirschberg examined the appendix from a second case of tubal pregnancy, and was unable to find decidua, and Taussig[8] examined a specimen from a ruptured tubal pregnancy of the right side, in which the appendix was embedded in hemorrhagic masses and was removed with the gestation sac. In this instance "a large number of sections were made from three portions of the appendix and mesentery, but no trace of decidua was found anywhere."

Of great interest in connection with cases of this character is the question of the etiology of the extra-uterine decidual masses—a question which can hardly be separated from that of the etiology of decidua in general. From a somewhat similar study of the subject, Taussig has come to the conclusion that certain end-products of placental metabolism incite in the loose connective-tissue cells of the uterine mucosa the typical decidual change, and that the end-products exert a similar influence on the subperitoneal connective-tissue cells of the various other parts in which this has been found. Since the extra-uterine decidual reaction occurs always near the surface of whatever tissue it involves, Taussig believes that some surface irritation must play an important rôle, but that since the decidua-like cells occur in scattered, more or less circumscribed patches, the causative influence, whatever its nature, cannot be transmitted by a soluble substance, or by way of the blood-vessels or lymph-channels. He has therefore advanced the theory that cellular detritus from the placenta passing out through the lumen of the tubes, and becoming scattered over the pelvic peritoneum, might bring about a spread of the irritation which would fulfil the requisite conditions.

While this theory appears at first sight fairly plausible, it does not appeal to me as a very satisfactory explanation for the majority of cases, and certainly not for the one at present under consideration, in which there were no adhesions to bring the appendix—the site of the decidual reaction—into especially close relationship with the uterus, tubes or any other portion of the genital system. Moreover, a rather cogent argument against the origin of uterine decidua being dependent on the end-products of placental metabolism would seem to be furnished by the fact that not only does the decidual change begin to take place in the endometrium before there is any suggestion of placenta formation, but that at each menstrual period the stroma cells of the endometrium undergo changes which are identical with the first steps of decidua formation, and result in the production of a histologic picture that can with great difficulty be distinguished from early decidua. Indeed, the difference between the true decidual tissue of pregnancy and the pseudodecidua of menstruation is one of degree, rather than of quality, the former undergoing a routine development far richer and more perfect than is ever attained by the latter.

As I have pointed out in a previous paper[9] on decidual reaction in the omentum, the theory advanced by Loeb[10] to account for the formation of intra-uterine decidua appears, perhaps, to offer a more satisfactory explanation for its occurrence likewise outside the uterus. Loeb's theory, based on careful animal experimentation, is, in brief, that the corpus luteum elaborates a sensitizing hormone, under the influence of which the stroma-cells of the endometrium react to any non-specific irritation —such as the introduction of a small foreign body into the uterus—by the formation of a decidua, the necessary irritation being furnished under normal conditions by the lodgment of the fertilized ovum. If the presence of such a hormone can thus sensitize the stroma-cells of the uterine mucosa, why may it not be assumed to exert a similar influence on the connective-tissue cells of other areas, so that when acted on by any sufficient irritant, they too will undergo a similar transformation—less well-developed, however, inasmuch as this tissue is not so well adapted to undergo the characteristic changes as is the loose endometrial stroma? The fact that in addition to the presence of the sensitizing hormone, this second factor of local irritation appears to be necessary to cause any considerable decidua formation, would seem to furnish a sufficient explanation for the occurrence of this in scattered patches rather than diffusely; only at those points at which some slight mechanical or other stimulus is active do the cells undergo a decidual change. The occurrence of the reaction usually just beneath the surface may be explained on the ground that the tissue in this location is rather loose, so that its cells have a better opportunity to expand than do those of the deeper structures, as well as by the fact that the local irritation is probably, in most instances, exerted from the surface.

In the case of the appendix described in this paper, the intense inflammation present undoubtedly furnished the irritative stimulus necessary to produce the reaction; that a similar reaction is not found in all inflamed appendixes removed during ectopic or normal pregnancy is probably to be explained in the same way as its failure to occur, in some instances, in the tubal mucosa, or in any other of the numerous extra-uterine situations in which, in other instances, it does develop. Ectopic decidua appears, on the whole, to be extremely fitful in occurrence, a circumstance which—if we accept the previously outlined theory—may be ascribed to variations in the intensity of action of the ovarian hormone, to different degrees of responsiveness on the part of the subperitoneal connective-tissue cells, or to the presence or absence of suitable local stimuli, each of these factors undoubtedly varying greatly in individual cases. Viewed from this point of view, the appendix must be considered an organ whose cells are extremely unresponsive to the decidual stimulus; while as a rule they do not undergo during pregnancy any change analogous to that shown routinely by the cells of the endometrium, and more or less spasmodically by those of many other localities, they may, under exceptional circumstances, take part in a similar transformation, showing a well-marked decidual reaction in conjunction with either ectopic or uterine pregnancy.

---

[8] Taussig: Ectopic Decidua Formation, Surg., Gynec. and Obst., 1906, ii, 282.

[9] Outerbridge: Decidua Formation in the Omentum in Sec-
ondary Abdominal Pregnancy, Am. Jour. Obst., 1912, lxv, 212.

[10] Loeb: Zentralbl. f. Physiol., 1908, xxii, 498; 1909, xxiii, 73;
1910, xxiv, 203; The Production of Deciduomata, The Journal
A. M. A., June 6, 1908, p. 1897; The Experimental Production of the
Maternal Placenta, The Journal A. M. A., Oct. 30, 1909, p. 1471;
Med. Rec., 1910, lxxvii, 1083; Deutsch. med. Wchnschr., 1911,
xxxvii, 17.

Note.—Since the proof of the foregoing article was corrected, a second instance of distinct decidual reaction in the appendix in conjunction with normal pregnancy has recently come to my notice.

Mrs. L., aged 22, pregnant at about the sixth month, was operated on for an acute appendiceal attack by Dr. H. D. Beyea at the Gynecean Hospital, Oct. 7, 1913. The appendix was found greatly thickened and congested; it was closely bound down by a very short meso-appendix, but was not adherent to the uterus. There was no perforation, but there was a small amount of odorless, purulent exudate in the immediate appendiceal neighborhood. Following appendectomy and drainage the patient made an uneventful recovery, without disturbance of the pregnancy.

On microscopic examination of the appendix, all coats are seen to be thickened, and intensely infiltrated with round cells and polymorphonuclear leukocytes, presenting the characteristic appearance of an acute, diffuse appendicitis. Here again, however, the serous coat is the one most markedly involved: it is many times thicker than normal, edematous, and shows much congestion and inflammatory infiltration. Scattered here and there, chiefly in this instance in the deeper portions of the serosa, near the longitudinal muscle layer, are numerous small but very distinct and characteristic groups of the same large cells before described and illustrated. Although in this specimen none of the cell-groups are as extensive or prominent as in the first case, there rarely being more than half a dozen cells in a clump, and often only two or three, their appearance is so typical and distinct from anything else that there can be little doubt as to their significance. In many instances they are distinctly multinucleated, a condition not infrequently seen in true decidua.

It is rather significant that we have in this instance practically the same conditions as were present in the first case, namely, an appendix the seat of an acute inflammatory process, affecting most markedly the serous coat, in association with a well-advanced intra-uterine pregnancy.

2040 Chestnut Street.

INFANTILE PARALYSIS AFFECTING THE LOWER EXTREMITIES; ITS SURGICAL TREATMENT AND POSSIBILITIES OF CURE

A PRELIMINARY REPORT

E. P. MAGRUDER, A.M., M.D.
Clinical Professor of Surgery, Georgetown University School of Medicine; Associate Surgeon, Emergency Hospital.
WASHINGTON, D. C.

If we remember that, rickets excepted, infantile paralysis is the most prolific source of deformity, that 85 per cent. of these deformities affect the lower extremity and that in many instances the usual treatment is tiresome and tedious and extends over many years, then any short cut to the restoration of function in such cases is worthy of consideration. It will serve for contrast and comparison if for no other purpose.

My case is as follows:

History.—L. J., boy, aged 3, of Prince George's County, Maryland. Family history negative; father and mother, two sisters and a brother, alive and enjoying good health. None of these has experienced any illness similar to that of the patient, though there were other cases, I am told, occurring at the same time in that neighborhood. There are no evidences whatever of syphilis in the parents. Previous history: The child was breast-fed, enjoyed excellent health and was quite strong and active until nearly 6 months of age, when he was taken suddenly ill, with restlessness, fever and great irritability. He apparently desired to be let alone. Any movement, as an attempt to lift him, would cause him to cry out with pain. In a few days the mother noticed that he was quite unable to move his right leg, which lay limp and lifeless. After some weeks the child appeared normal again, except that the right lower extremity seemed completely paralyzed and remained so for two years. In May, 1913, the child was referred to me.

Physical Examination.—The child is fairly well nourished and normal in appearance except as regards the entire right lower extremity, which is in a state of apparently complete flaccid paralysis. The thigh hangs limp from the hip-joint, with slight flexion at the knee. There is marked difference in the measurements of the two thighs, legs and feet. The pointed toe of the right foot is typical. The reflexes are normal in the left lower extremity, while in the right, knee-jerk, Achilles tendon, Babinski and Kernig's signs are all absent. With the exception of the slight tonicity of the biceps, loss of power seems complete. If the child is made to stand on the sound leg, there is marked external rotation of the right thigh and eversion and abduction of the leg and foot. The capsule of the hip-joint is quite relaxed, and the head of the femur swings freely, partially without the acetabulum. The arc of rotation described by the trochanter is much exaggerated as compared with that of the sound side. The flaccid condition having existed for a little over two years, the only encouragement offered lies in the use of the biceps for transplantation, together with fixation of the ankle-joint.

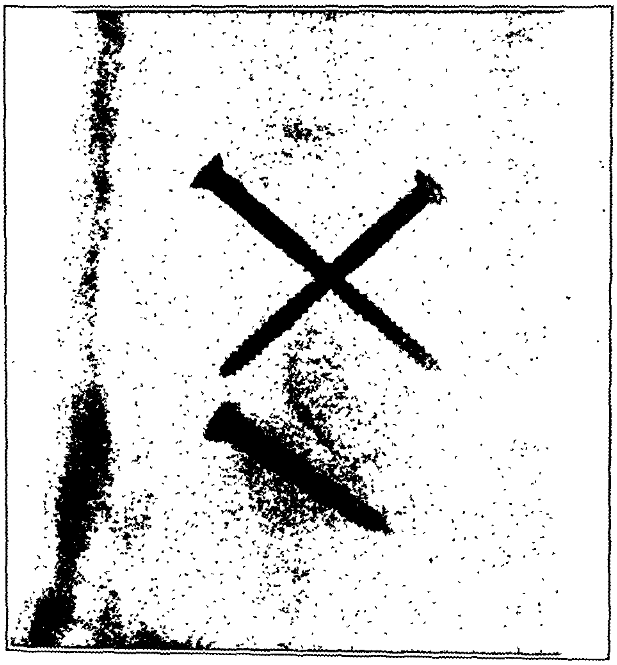


Fig. 1.—Fixation at ankle-joint; also scaphoid and cuboid bones. Anteroposterior view.

Surgical Treatment and Results.—The technic pursued consisted of the transplantation of the biceps tendon into the patella and a double fixation at the ankle-joint by means of three screws. With the foot in the corrected position at right angles to the leg, one screw was passed through the external malleolus, astragalus and calcaneus, another through the internal malleolus almost at right angles to the first, while a third screw was passed through the scaphoid and cuboid, fixing the key of the arch of the foot. The head of the femur was returned to the acetabulum and a plaster-of-Paris cast snugly applied from the foot to the costal margins and allowed to remain on for six weeks. The wounds healed by first intention.

Passive motion and massage were then instituted, and the weight of the body gradually applied to the foot, now firmly fixed at the ankle-joint. Minute instructions were given to the mother as to the training of the child to walk, and as an aid to this end a simple device of the foot-bridge effect, with hand-rails, was built outdoors close beside the house for daily exercise. The child held to the rails while his feet were, in the beginning, picked up and carried forward in the earliest attempts to walk. Two perfectly straight strings were laid on the ground between the rails, on which the child's feet were placed, so that he might be taught, so far as possible, to walk straight from the beginning; this was intended primarily to overcome the external rotation of the thigh, eversion and abducted foot-effect.

The power of the biceps soon manifested itself, changing its action from flexion to a very slight extension of the leg. The foot held firmly in the right-angled position. Improvement at first was very slow, and at times discouraging, but progress has continued steadily and without retrogression to date. The gain in strength to the leg, the increase in size of practically all the muscles, the marked growth of the child and the improvement of his mental and physical condition have been most gratifying. He can walk short distances, 50 or 60 feet, without any assistance whatever.[1] He can stand the weight of his body on the affected leg without its buckling beneath him. He enjoys his exercise in the open air and sunshine on his little foot-path with rails, and is quite delighted with the idea, which he has been taught to believe, that he is soon to be able to walk and play like other little boys. The external rotation of the thigh, with its eversion and abduction effect on the leg and foot, still persists, but I have as yet made no attempt to correct this, further than by the use of a little adhesive plaster running from the thigh above the knee on one side across to that of the other, which serves very well indeed for a temporary correction of the deformity. It gives him the wider pedestal on which to walk and stand. This is deliberate. In the earlier stages of the treatment, I believe that "suits of armor, bristling with screws and ratchets," if it is possible to do without them, are a decided disadvantage. They are an absolute hindrance to the freedom of growth and development and the early acquisition of strength to the affected limb, and of all considerations these are paramount.

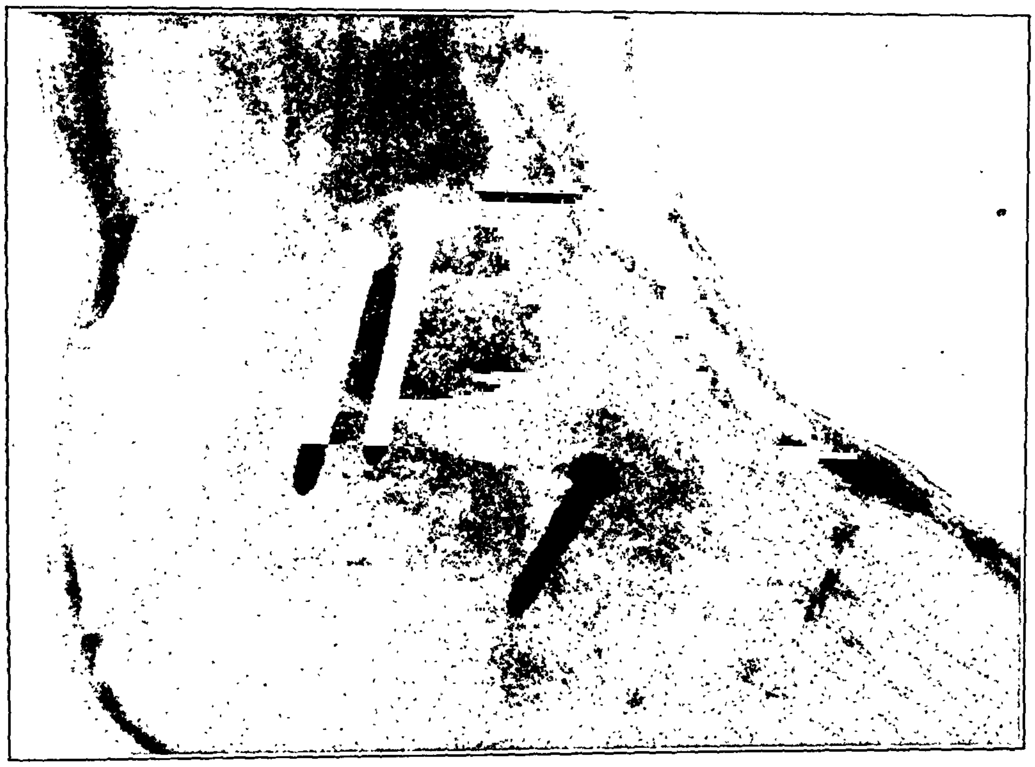


Fig. 2.—Fixation at ankle-joint; also scaphoid and cuboid bones. Lateral view.

POSSIBILITIES OF CURE

The operation to be successful must of course be followed by long and careful after-treatment, anticipating the sequence of events. The great error has been to assume that certain groups of muscles irresponsive to stimulation are lifeless, and that there is cell destruction in the motor area. On he contrary, actual cell destruction is nothing like so common as one might suppose, the condition often being transient and recoverable. Until this fact is accepted, the potentialities for recovery are not realized.

CONCLUSIONS

I am of the opinion that many cases of infantile paralysis regarded as hopeless are amenable to the treatment herewith suggested. The double-fixation method with tendon transplantation in paralysis of the lower extremity is, I believe, a valuable surgical asset. It is an effective substitute for arthrodesis, much less destructive of tissue, quicker in result, much surer and much simpler. Further, it does not permanently destroy the integrity of the joint or entail the extensive destruction of bone or cartilage, or both, and does not have to wait for the dictum of the "tenth year" in order to be effective. Again, these screws can be removed when strength to stand and muscular function are firmly established, thus restoring at least in part the integrity of the ankle-joint. At this late date of removal, recurrence is quite improbable. We may style the scaphoid and cuboid bones the key to the arch of the foot, and their fixation at this critical period with that of the ankle-joint itself unquestionably adds material strength to both. It is very effective in the prevention of toe-drop. That the screws may act as foreign bodies is an exaggerated fear. Foreign bodies become active only in the presence of infection. This has been conclusively shown by Lexer and Lane.

A double fixation is a double strengthening. It makes assurance doubly sure. The foot-bridge with handle-bars and strings on the ground running parallel is, I am persuaded, an effective device, the simplicity of which is its recommendation. The value of the open air and sunshine, in connection with the exercises as carried out with this device, is patent. The little patient early learns to become independent of another's assistance, and this independence stimulates and encourages self-confidence.

Properly directed, nothing else is quite comparable to exercising of the muscles by the patient himself. Self-reliance has no substitute.

The roentgenograms illustrating this article were taken by Dr. T. A. Groover.

The Farragut.

---

[1] The paper on which this report is based was read before the Medical Society of the District of Columbia, April 23, 1913. Since then, the improvement has been marked; the child can now walk 50 yards without assistance.

CAUSES OF ERROR IN THE DIAGNOSIS OF DISEASES OF THE JOINTS*

WISNER R. TOWNSEND, A.M., M.D.
NEW YORK

Surprise is often expressed by those who specialize in medicine at the number of erroneous diagnoses in the patients who are referred to them for treatment. The expert certainly should be able to make more correct diagnoses in the line of work that he is an expert in than one who is not specializing; but even among so-called experts errors are frequent and the correct diagnosis is sometimes never made, and in other instances many men are seen before the true nature of the disease is arrived at. Much could be written on the necessity for a correct diagnosis as preliminary to correct treatment, and in many instances errors in diagnosis involve serious results for the patient, as faulty treatment may actually render conditions worse; but this phase of the subject does not need to be elaborated. In this connection, however, I quote the following from Richard C. Cabot:[1]

> I wish in this paper to make three points: 1. A goodly number of "classic," time-honored mistakes in diagnosis are familiar to all experienced physicians because we make them again and again. Some of these we can avoid; others are almost inevitable, but all should be borne in mind and marked on medical maps by a danger-signal of some kind: "In this vicinity look out for hidden rocks," or "Dangerous: turn here, run slow." I shall enumerate some of these danger points presently.
>
> 2. Some common diseases are relatively inaccessible to diagnosis, no matter how carefully we are on the watch for them. From the study of 3,000 autopsies, I have begun to work out a percentage or ratio of accessibility for the commoner diseases.
>
> 3. Besides the classic and well-known pitfalls there are some less familiar to the profession and needing all the more, therefore, to be marked "dangerous."
>
> Most physicians believe that Pott's disease of the spine is easily recognized because of the "knuckle" in the spine, the pressure signs, muscular rigidity and secondary abscesses, but the difficulty is precisely in that group of cases which do not show these signs.
>
> Some of the most humiliating yet almost unavoidable failures of my experience have been made in cases which showed post mortem the lesions of Pott's disease. Only four of the seventeen cases that came to autopsy in this series of 3,000 post mortems were recognized in life. In ten of the thirteen "misses" there is "no blame to be attached to the official in charge." The diagnosis was not suggested by any of the facts at our disposal. The clinical picture was usually that of an overwhelming infection (miliary) which was called "septicemia from pelvic abscess" (really a psoas abscess), "meningitis," "acute uremia" (two), "septic scrotum," "otitis media with pyemia," "pneumonia" (two) and "septic hand with general sepsis."
>
> In two cases there was a slight kyphos which should have been noticed, but as it had been there for many years without change, it was ignored. In one case there was a gradual, even curve of the whole spine diagnosed by a skilful orthopedic consultant as spondylitis deformans.
>
> The ages of the thirteen patients whose disease was unrecognized were: 26, 51, 54, 81, 29, 44, 49, 53, 50, 64, 65, 45, 40. The average is fifty years. In the four recognized cases the ages were 34, 40, 34, 21 (average, 32).
>
> The moral is that we do not look or ask carefully enough for evidence of old vertebral tuberculosis in elderly patients, because we associate the disease with youth.

To those who specialize in orthopedic surgery it seems rather strange that so many errors should be made in the diagnosis of adult Pott's disease, but it only shows how necessary is a complete, careful examination of the entire body in cases in which the symptoms are not absolutely clear, because a complete examination of this kind would often reveal the true conditions present.

The percentage of correct diagnoses in Cabot's series varied greatly. The smallest was 16 per cent. in acute nephritis as compared with 92 per cent. in diabetes mellitus. Just what the percentage of error is in the diagnoses of diseases of the joints, it is difficult to state, but it has seemed desirable to bring together a few facts which might help those who have to make such diagnoses, to guard against errors that are avoidable. It is for that purpose that this article has been written, and in it no attempt will be made to print a list of all the diagnoses that could be made for any given condition or all the posible errors that are encountered in the diagnosis of any given condition.

The chief causes of error are:

1. Failure to obtain a proper history.
2. Failure to make a proper examination.
3. Failure to take a roentgenogram.
4. Failure to interpret the Roentgen findings properly.
5. Failure to use laboratory methods as aids to diagnosis.
6. Failure to adjust laboratory findings and clinical symptoms properly.
7. Failure by many physicians to realize their limitations—erroneous diagnoses due to ignorance.

The failure to secure a proper history is responsible for many errors of diagnosis, and the traumatic theory of the causation of joint-diseases was largely due to the failure to secure good histories, to ascertain the true facts or all the facts in the history of the patient with joint-disease. Many of these conditions occur in early childhood and in many instances the parents will attribute the symptoms to a fall, insisting that the child was perfectly well until then. A careful cross-examination, however, will show that night cries, intermittent pain and lameness may have existed for months but were not considered of any importance until the symptoms became aggravated as the result of some more or less serious traumatism.

A large number of the cases of Pott's disease in my experience have been attributed to the negligence of a nurse in allowing the child to fall, and the smallest of knuckles of the spine occurring in children of 4 or 5 may be ascribed to some traumatism of early life, or even pass unnoticed for a long time, or a careful history will show that the present symptoms had no connection with the traumatism which is held responsible for them. Systematic and careful histories should be taken in all cases of joint-disease and the teachers in the medical schools can do no greater service to their students than to impress on them the necessity for careful history taking.

It is essential if one is to draw any definite conclusions as to the causation of any given diseased condition, and a careful and well-taken history will clear up many obscure and involved conditions. Joint-diseases occur with, or are caused by, many infectious processes, and a good history will tell one whether the patient has or has had typhoid fever, scarlet fever, pneumonia, gonorrhea, syphilis, a new lesion, or an inherited one, a sore throat, and whether or not antitoxin was used, a tabes dorsalis, or any of the various forms of nervous disease accompanied by or followed by joint lesions.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Cabot, Richard C.: Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies, The Journal A. M. A., Dec. 28, 1912, p. 2295.

I have seen errors made in joint lesions of all of the before-named conditions in which a good history would have made conditions clear. For hospital or even private work history sheets or cards are invaluable and hasten history taking and assist in securing all of the desired facts relating to any given disease.

The history will also be of great help. If taken in connection with printed cards in causing the observer to think logically and not to lay too much importance on the trivial facts which are to the patient often the most significant, and thus made the most prominent in his details of the symptoms for which he applies for diagnosis or treatment.

At present the subject of heredity is not considered of so much importance as formerly, but it is of some value and that subject and the method of life and the surroundings in which the patient lives or has lived can be ascertained only by a careful history. Hereditary syphilis is very important, and knowledge can be secured in many instances only by careful and diplomatic cross-questioning. The history of mother and father should be taken separately, without knowledge of the other. Not only may the information be of value in arriving at a diagnosis, but it may also be of use in treating the parents and avoiding further inherited conditions.

As one sees patients in consultation one is also impressed with the fact that the physician who has a careful history, preferably a written one, to present is far less frequently liable to make an error in diagnosis than the one who has no clear idea of the history of the patient's previous condition. The failure to secure a good history is usually due to laziness or too great haste in the examination, although some physicians, like some lawyers, seem to lack the power to cross-examine properly. As most of those who contribute to medical literature draw most of their material from hospital wards rather than from private practice, they probably appreciate more fully the value of a good history than do those whose practice is exclusively among private patients; but the latter class of physicians could contribute fully as valuable material to medical literature if by a slight additional effort they would take histories of the most important of their cases, if not of all.

Most physicians can recall errors made in diagnosis from a failure to secure a good history of the case, and I feel that with the great tendency toward submitting everything that can be submitted to a laboratory test, the value of taking a proper history of every patient should be insisted on more strongly to-day than ever.

The failure to make a proper examination is also a frequent cause of errors of diagnosis. In childhood there is no excuse for lack of a thorough examination because children, even those in the second decade of life, are usually not close observers, and it is essential that they be examined with the clothing removed, and no objection is made to this procedure in either sex. In adults it is different. It takes time to dress and undress, and the physician is often hurried and yields to the wishes of the patient that only a partial examination be made. Many women also object to undressing for an examination, and sometimes much tact is required to secure their consent. The large number of errors in the diagnosis of Pott's disease referred to by Cabot were largely due to failure to make a proper examination, and his statement that "The moral is that we do not look or ask carefully enough for evidence of old vertebral tuberculosis in elderly patients" is interesting; but not all of these cases in adults are by any means old vertebral tuberculosis. Many are recent infections. To examine the spine of every patient applying for treatment would be absurd; but if it could be done in many instances it might be of value to both patients and doctor.

That Pott's disease in the adult is frequently overlooked, apart from Cabot's statistics, is a well-known fact. Two patients that I have referred to in another paper, in which the stomachs were washed out for varying periods by capable physicians, illustrate the failure to recognize a Pott's disease. The diagnosis of the same disease and of a lateral curvature by the dressmaker is not infrequent, because of failure of the physician to make a proper examination. The diagnosis of osteitis of the hip, knee or other joint and the overlooking of an active Pott's disease is not infrequent. The same is true of any active or acute disease. All attention is centered on it and other lesions overlooked, because they are not looked for. Enlarged and suppurating tonsils, carious teeth, pyorrhea, osteomyelitis of alveolar processes and jaws, swollen or bleeding gums, are all important in seeking obscure causes of infection.

I must acknowledge that to careless or hurried examination I have to credit most of my errors in diagnosis, and from conversation with colleagues I believe that it is the most frequent of all causes and that it is avoidable. To call attention again to this fact is therefore proper. Among the many new methods of diagnosis or aids in diagnosis is roentgenoscopy. It is of great aid in some instances and a great disappointment in others. A good roentgenogram may show something, while a poor one will show nothing. In early, incipient cases in which its aid is most helpful, even the best of roentgenograms often show nothing; but in case of doubt one should always be taken, if possible. It may show something and it will help in case of future trouble. It will show that everything possible was done to make an accurate diagnosis. In malpractice cases many arguments have been advanced by the attorneys to show that as there was a doubt as to diagnosis a roentgenogram should have been taken to clear up the doubt, and the failure to take one was "negligence." This is an extreme view; but as roentgenoscopy is so commonly employed, this aid to diagnosis should be more freely used.

Too much reliance must not be placed on the interpretation in roentgenoscopy. Experts differ wonderfully and no reliance should be placed on a poor roentgenogram in which one tries to see what he desires to see and no one else can see. Such a series of plates was sent me a few days ago with a diagnosis of osteo-arthritis of the spine. That was the diagnosis made by the physician in charge. As the consultant, I had asked for some roentgenograms, and they were made. The roentgenologist confirmed the diagnosis. The plates were shown by me to a number of men, and the only possible diagnosis that could be made from them was that they were attempts to take roentgenograms of the spinal column. Not even magnifying glasses and electric lights in boxes revealed any details to suggest the diagnosis made by the roentgenologist. This is not infrequent and may cause serious errors in diagnosis.

Another error is to misinterpret the findings in either a good or poor roentgenogram. Foci of disease are found where none exist and are overlooked when they are present. I have seen both conditions in which more careful examinations confirmed the facts. In one instance a focus of disease was shown on a print and no one could find it on the original plate; yet it really existed. The prints are usually not so satisfactory as the original plates.

Most plates make poor prints, and it is often impossible to see anything on a print. A blurring of a joint-surface may be taken for a beginning disease when it really is due to the fact that the patient moved during the taking of the picture. Occasionally a view in one plane will reveal facts that a view in another plane does not show. In developing the plate valuable data may be hidden or clearly brought out, and errors of photographic development may be responsible for false ideas as to what the roentgenogram really shows.

Negative findings should not be considered except very rarely. No one should ever make the mistake of ignoring clinical symptoms. Every question of doubt must be decided in favor of the existence of disease when the Roentgen findings are negative.

Errors due to placing reliance on roentgenoscopy are numerous and are encouraged by the statements of many Roentgen operators, that if disease is present the [illegible] ely show it. This is not founded [illegible] or thorough knowledge. Many early conditions cannot be detected by the Roentgen ray. In very fat persons clear pictures are the exception, and in early childhood soft bones an [illegible] lend themselves readily to clear and [illegible] between the normal and abnormal. Therefore, the caution is needed, do not rely too much on the roentgenogram; ignore it entirely if it is a poor one, or if no skilled expert has the opportunity to interpret it. What the average physician does not know about roentgenograms would fill many a volume, and even some experts have much to learn.

The laboratory aids to diagnosis are so important that they are being used more and more. In some instances they, too, fail to give us information in the early cases of joint-disease, so that one must, as in Roentgen-ray findings, be careful not to place too much reliance on a negative finding. The positive findings are of the greatest possible value. A positive Wassermann or a complement-fixation reaction in syphilis, a demonstration of gonococci, or the complement-fixation reaction, a positive tuberculin test or the presence of bacilli of Koch in sputum or in any of the discharges, and the presence of pneumococci and other bacteria make diagnoses possible of a definite kind that clinical symptoms can only suggest. The latter indicate disease of a joint, the former the nature of the infection. A leukocytosis may also be of value in differentiating different diseased condition. The laboratory findings must be interpreted intelligently. Not too much reliance must be placed on a tuberculin or Wassermann test in which the clinical symptoms "do not fit," so to speak. Such a case is the following:

> A positive tuberculin test was obtained in an adult with a low leukocyte count, a swollen ankle, a tender spot and swelling of lower third of tibia, a septic temperature ascribed to tuberculosis by the bacteriologist diagnostician, and loss of weight ascribed to tuberculosis by the family physician. There was a cough, but examination of sputum was negative. Roentgenoscopy at first was negative, and a diagnosis of osteomyelitis was made. Two weeks later Roentgen findings were positive, revealing a focus at the site of tenderness in the tibia. Operation was consented to. On the day before the operation there was a high leukocyte count: pus was found and evacuated; the temperature became normal; the cough disappeared; weight was more than regained, and the diagnosis of tuberculosis proved incorrect.

The general rule is that a high leukocyte count does not occur in bone tuberculosis but only in cases of infection by pyogenic organisms. The high count just before the operation confirmed the diagnosis. Other experiences of this kind occur to all and render caution necessary. The existence of two diseased conditions present in one person at the same time must be considered.

The prevalence of certain forms of arthritis varies greatly according to surroundings and conditions. Take for instance the table of Baetz,[2] who found in 100 cases of acute arthritis among negro laborers on the Canal Zone 63 cases of syphilitic arthritis, 28 of gonorrheal arthritis, 6 of undetermined arthritis, 2 of dysenteric arthritis and 1 of tuberculous arthritis. This is rather startling but easily accounted for by the conditions: a large male population made up of single men of low morals, with venereal diseases prevalent. No private practice in the United States would show the same proportion of causes of infection. All tests of laboratory type must be carefully interpreted, and the views of Craig[3] of the Army Medical Corps, express clearly the various interpretations that are to be given to the test, and close with these very pertinent remarks, which should be always followed by all who have to treat disease:

> For this reason the test should be made only in properly equipped laboratories by those who have received special instruction and who devote a large part of their time to this work. Under such conditions results will be satisfactory, but the interpretation of the test must always remain with the clinician. The laboratory report deals only with the result of the test, and it rests with the clinician to correlate this result with the clinical condition present.

Errors due to failure of physicians to recognize their limitations may in some instances be prevented by the sad experiences that sometimes follow serious errors. Many physicians are most conscientious in this respect, either declining to treat a given case or at once calling in an expert. A few others, some posing as specialists in some line in which joint cases are seldom seen, take such patients and continue to make the diagnosis of rheumatism for every joint lesion seen. For accurate diagnosis it would be well if the term "rheumatism" could be omitted entirely from nomenclature. Kenneth Goadby[4] says:

> The term "rheumatism," like many another medical word, has come to designate a multitude of diseases, and covers many sins of commission and omission in diagnosis. Omnibus words of this type are, no doubt, very useful, but tend to hamper exact description.

This class and the ignorant physicians who do not know a diseased joint when they see one are hopeless. No article ever written will reach them. Fortunately they are few in number and their number is becoming less each year.

125 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. D. J. Griffith, Kansas City, Mo.: There are some other joints in which we are sometimes liable to make errors in diagnosis without the use of all the adjuncts of which Dr. Townsend has spoken. At any rate, the Roentgen ray is sometimes not available for use, and the patient comes with a diagnosis of other troubles besides the spinal one. This experience occurred to me in the case of a child, aged 10 years, who was brought to me with a history of knee-joint trouble It seems that, four or five years before, she had jumped and landed on one foot, instead of on both feet. Suddenly she experienced pain in the knee and just below it. She was brought to me after having had treatment for knee-joint trouble, of which she had had occasional attacks. At the tubercle of the tibia, but nowhere else, there was pain on pressure; she had passed over the point of temporary synovitis produced when she strained the joint. We found, on making a roentgenogram, one of those unusual cases that Dr. Osgood presented several years ago before the American Orthopedic Association. The tubercle of the tibia was torn off by the quadriceps tendon through some overexertion. The epiphysis had not been joined onto the diaphysis and had torn loose—Osgood-Schlatter disease.

---

[2] Baetz, Walter: One Hundred Cases of Acute Arthritis Among Negro Laborers on the Panama Canal, The Journal A. M. A., April 5, 1913, p. 1065.

[3] Craig, C. F.: Interpretation of the Results of the Wassermann Test, The Journal A. M. A., Feb. 22, 1913, p. 565.

[4] Goadby, Kenneth: London Practitioner, January, 1912.

Dr. Henry Ling Taylor, New York: There is one diagnosis that Dr. Townsend did not speak of that every orthopedic surgeon should be able to make, and that is the diagnosis of whether a roentgenogram is good or bad. The importance of this fact came out in practice when a medicolegal case was brought for diagnosis. The patient, a woman, was lame and had tenderness back of the hip, but the symptoms did not resemble any kind of arthritis of the hip. Her physician brought a series of roentgenograms to me and said: "Do you not see a cyst in these plates?" "No," I replied. "What do you see?" he asked. I said, "I see a poor roentgenogram." It was very cloudy. I insisted on having a series of good roentgenograms before I made a positive diagnosis. They showed no cyst but a button of bone divulsed, pulled out, just behind the obturator fossa. It was a unique case. I never saw or heard of one like it. This button of bone showed plainly in a series of five or six roentgenograms, taken in five or six different positions; this cleared up the diagnosis absolutely.

Dr. E. W. Caldwell, New York: I am glad to have an opportunity to express my approval of all that Dr. Townsend said about the danger of misinterpreting roentgenograms, and especially about the usual inaccuracy of hospital roentgenograms. For many reasons, which I shall not discuss at present, it is difficult to get good roentgenographic work in any hospital or similar institution. Sometimes it is a question of money. Often, however, it is a question of recognizing that Roentgen diagnosis is not photography. Many hospitals want to have this work done by a photographer. Although some photographers can be taught to make good-looking plates, we have all had plenty of occasion to know that the photographer's plate is not safe.

Dr. Reginald H. Sayre, New York: I often find that I do not get the true history of these cases until many months after I have been treating the patient, not on account of intentional falsification on the part of the patient, or on account of carelessness on my own part; but now and then, something will be said that will bring to light a fact that has been lost sight of absolutely.

There are one or two pitfalls in diagnosis that I have happened to notice, which I do not think Dr. Townsend mentioned. One is the possible error in mistaking anterior poliomyelitis, in the first few days of its course, for joint affections. I have seen three cases of this disease that were brought to me on account of a painful limp, and had almost all the earmarks of a beginning tuberculosis of the hip or of a beginning hip-joint inflammation. Being uncertain as to the diagnosis, I asked the child, in each instance, to come back again at the end of a week for further investigation; and at the second appearance the child showed distinct evidences of the existence of anterior poliomyelitis and subsequently went through the course of that disease. This is a fact worth bearing in mind.

I have also seen several hysterical knees (so-called), which depended on a reflex uterine lesion and disappeared after the uterus had been put in place and retained there. I have likewise seen a case of supposed tuberculosis of the spine that had been treated by a number of men, which was also due to a retroflexion of the uterus. There was spinal distortion, weakness in the leg and atrophy of the muscles on the affected side, all of which disappeared after replacement of the uterus. I believe that cases of this kind are more frequently met than we are generally led to suppose; and I can certainly agree with Dr. Cabot concerning the frequency with which Pott's disease in the adult is overlooked, as I have seen a large number of patients with this disease who had been in various hospitals and had been treated for various things. I remember one patient who had been originally referred to the hospital by the attending physician for Pott's disease; but there, she was not operated on for Pott's disease, but for a lacerated cervix. The patient was then sent back to the attending physician, but her symptoms continuing, she returned to the hospital later for another examination. On this occasion the hospital physician turned the patient over on her face, and found a knuckle in the spine, which had probably been there all the time. Failure to look for such things is probably the reason for not observing them more frequently.

THE PASSING OF THE FAMILY DOCTOR*

GEORGE W. GUTHRIE, M.D.
WILKES-BARRE, PA.

Lowell says, "Time makes ancient good uncouth." The whole trend of modern thought is to look for a new and better way. We travel, literally, in chariots with horses of fire. Jules Verne's dream of "Around the World in Eighty Days" has been more than realized and the stories of the Arabian Nights are equaled by the every-day events of common life.

Even our sentimental life has changed. The beautiful story of Uncle Toby and the fly that was an inspiration to our boyish imagination and the picture of the kindly old man opening the window and saying, "There's room enough in this world for both thee and me" has been changed to the slogan "swat the fly." We have come to agree with Cowper in reference to the lower animal's that

> If man's convenience, health or safety interferes
> His rights and claims are paramount and must extinguish
> theirs.

But in no realm of human activity has the advance of modern thought caused such changes as in the practice of our profession. In the past one physician, the family doctor, was deemed competent to meet all the exigencies of life requiring medical aid; he was physician, surgeon, obstetrician, oculist and pediatrist.

President Wilson,[1] in his admirable address of welcome as governor of the state of New Jersey, to the American Medical Association in Atlantic City on June 15, 1912, said:

> I believe you will agree with me that one of the things to be regretted in our modern time is that we have been obliged to specialize our professions to so great a degree, because in proportion as the medical profession is specialized, for example, the old family physician disappears. I remember going over in my memory a single year of my family life with my children when they were small and finding that I had called in consultation thirteen different specialists. There was no ill luck in the thirteen because it all came out very happily. But where I had summoned thirteen specialists, my father would have summoned one family physician. My father would not have got as good advice as I got, and yet I lived through it. But every time he sent for his doctor he was sending for a personal friend. He was sending for a man who had his confidence in a peculiar degree. He was sending for a man who walked the paths of life with him as a com-

---

* President's Address, read before the Lehigh Valley Medical Association, July 17, 1913.

[1] Governor Wilson's Address of Welcome, The Journal A. M. A., June 15, 1912, p. 1913.

rade and confidant. There was something very vital, there was something very useful in that relationship, and although we have certainly yielded only to necessity, it is unfortunate that we should have been obliged to specialize so much as we have and therefore it is necessary, it seems to me, if you will permit me to suggest it, that we generalize our sympathies.

It is self-evident that the work of the profession must necessarily be specialized. The field has become so vast that one mind can cover it only in a general way. But granting that it may require thirteen or twice thirteen specialists to represent all that is known in medical science and medical practice, it seems to me that it will be an unfortunate day for society when the honored office of family physician has become obsolete. I know that it is now a common practice for people to act on their own volition in the choice of a specialist. This is unfortunate. It were better by far that the patient act under the advice of his physician, even in the choice of a hirsute specialist or a corn-doctor, for I have known more than one case of serious infection to arise from a dirty corn manipulator, and many a bald head comes from ill-advised use of hair-restorers.

In this respect, as in many others, people are not able to decide wisely for themselves. An advertisement in a newspaper or the advice of some layman may be followed. The optometrist claims that he can treat all ailments pertaining to the eye; the osteopath has the effrontery to undertake to cure anything and everything, and so on through the whole range of human ills: there are pretenders whose true status can only be known by the intelligent, conscientious family physician, consequently he should be consulted in the choice of a specialist; first, because by his intelligent advice the patient will choose a specialist worthy of his confidence, and secondly, because the cooperation of the family doctor and the specialist will result in the patient's benefit, no matter what the ailment may be. The family physician, by his knowledge of the patient's family history, environment and habits, can aid the specialist who should return the patient to the personal adviser for the after-treatment and care.

There is no doubt that never in its history was our profession so competent and so willing to give aid and relief to the human family as at the present time. Indeed, the whole tendency of society is toward a broader humanity, which means that the best that the profession can give, the best that charity can furnish, should be shared by everybody.

The work of the visiting nurse and the hourly nurse, and that of the social service worker has carried the charity of the hospital and of the profession in a most intelligent manner to the needy and deserving. Indeed the humane offices of the well-equipped charity hospitals and the services referred to give the best to the poor and dependent. The wealthy can command this, either in their homes or in private hospitals; but how about the middle-class man, the man who cannot, who will not make himself an object of charity, but who has not the means to command the best the profession can give in all the special lines he may need?

Let me cite a possible example: A self-respecting artisan, accountant or teacher, earning $75 to $100 a month, takes his wife to a physician for advice and treatment. It is found as the examination proceeds that the services of an oculist, a cystoscopist, a roentgenologist, a pathologist and probably other specialists are necessary for a complete diagnosis. How is it possible for this patient to obtain this service in the most complete manner as the profession now operates and have the charges remain within his ability to pay? The poor and the wealthy, as noted above, have the best the profession can give them; why not the eminently respectable and worthy middle class of our people?

Dr. Richard Cabot, in an address before the Medical Alumni of the University of Pennsylvania, April 18, 1913, in referring to the need of this class of better medical service, advocated the grouping of medical men representing the several specialties, thus securing for the patient what he called a "group diagnosis," which should be furnished at a figure within his ability to pay. He referred to clinics in which this feature was present. The most notable example is the Mayo clinic at Rochester, Minn. A patient at that clinic can have, in addition to an ordinary diagnosis, physical exploration, etc.: (1) examination of nose, throat, antra and sinuses; (2) examination of eyes and eye-ground; (3) blood-counts, hemoglobin estimates, also coagulation examination for malarial organisms; (4) sputum examinations, also feces, Wassermann, complement-deviation test, vaccines and other parasitic and bacteriologic examinations; (5) test-meals; (6) fluoroscope-bismuth plates of gastro-intestinal tracts and roentgenograms generally of chest; (7) kidney, skull, pelvic and long bones; (8) proctoscope work; (9) genito-urinary diagnosis, including also cystoscope, functional renal tests, etc.; (10) fresh or preserved tissues for pathologic diagnosis.

About fourteen thousand patients attended this clinic in the year 1912, all of whom were examined and a careful diagnosis made in each case. About half the number were found to present conditions requiring operation—in exact figures, according to the report for that year, 7,053. Dr. Graham informs me that this number, about 50 per cent. of the patients appearing at the clinic, is much larger than in the earlier days of their work, in which the number recommended for operative treatment was not over 25 per cent. This is due in part to the increased diagnostic ability of physicians and to the greater diagnostic aids that have so recently multiplied. All these patients, however, are carefully examined and charged a fee for services, according to their ability to pay, which may be as low as from $10 to $15, or may be as high as $500, if the patient is wealthy.

This combination of medical men, representing the various specialties, is, to a greater or less degree, possible in every community. Call it what you will, the department-store idea applied to medicine, or any other name, if the end accomplished helps financially to bring the best aid of the profession to the middle class, it is justifiable; aye, more it is a necessity.

This grouping of medical men representing special lines of study and work is the only way in which the middle class can command the best services, unless they pauperize themselves and enter charity hospitals. Patients referred to these groups can return for treatment to their family doctors or personal advisers, with a scientific diagnosis, or they may enter hospitals which should be so managed that the expenses may be within their financial possibilities. Hospitals managed by religious orders, in which the nursing and care of the patients are largely in the hands of women who consecrate their lives to this service, are entitled to consideration and respect. We have splendid examples of such hospitals in the German Hospital of Philadelphia and St. Mary's Hospital at Rochester, Minn.

Granted that such a plan is feasible, that the best specialists associate themselves in groups for diagnosing and treating patients; does this do away with the family physician? Not in the least. The family doctor in this proposed scheme must be an up-to-date man. His knowledge must be general and accurate, he must keep in touch with advanced professional ideas, he must know that an operation for appendicitis performed within the first twenty-four hours of attack will, in all probability, cure the patient in one week, and that if a delay of forty-eight hours occurs, the results are much more serious and the convalescence prolonged into weeks or months. He should know that 80 per cent. of the growths in the mammary glands of women become malignant and that such patients should be referred to a surgeon. He must know that an inflammatory condition of the eye may be conjunctivitis, iritis or glaucoma; he must know the dangerous character of the latter two diseases, and especially that an acute inflammation in the eyes of the new-born is most dangerous and that all these cases demand the care of a specialist. He should know his own limitations. Weelum MacLure, the doctor of Drumochty, knew that he could not give Tammas Mitchell's wife the treatment that was necessary; he knew that she required the services of a surgeon and Sir George, the queen's surgeon, was called and saved the woman's life by operation. Dr. MacLure was equal to the terrible emergency that came to Burnbrae's family, when the boy's hand was mangled in the threshing machine. He amputated the hand and saved the boy, "the very look of him was victory that day." He knew how to treat Saunders, when the fever ranged above the danger-point, for he and Drumsheugh carried cold water from the spring, "dooked" the patient and thus reduced the temperature, but when Mitchell's wife suffered from what was probably a pelvic abscess, he summoned a surgeon who saved the patient to her husband and children.

Much has been said lately of lodge practice and medical insurance. The lamented Dr. Bristow[2] stated that 50 per cent. of the population of the United States earns less than $500 each annually, that 20 per cent. earns as low as $200 each annually. It is self-evident that this meager income can at best buy only the barest necessaries of life, and that when sickness comes there is nothing to do but to become objects of charity in hospitals, or, by combination in fraternal organizations or beneficial societies with insurance features, to secure the services of a physician in their homes at a low rate.

The Judicial Council of the American Medical Association, of which I have the honor of being a member, has been struggling with the question of lodge practice and the chairman, Dr. Alexander Lambert, in the report to the last meeting of the American Medical Association held at Minneapolis in June, said:

> No one questions the right of any man to take out a health policy in an ordinary health insurance company. No one questions the right of that man by this policy to pay from $60 to $300 a year as an insurance against the possibility of *accident or disease and* possible temporary or permanent invalidism occurring to him in the work peculiar to the medical profession. How then *does this* differ from the *dollar a* year that members of the lodges *and* societies pay for the privilege of obtaining medical services and care in accident and sickness, if these misfortunes come to them? There is no difference in principle; *there is no* difference in the economic necessity of it. As such it should be recognized and treated. The question comes down then to the designation of the weekly or monthly income at which this should be treated as an economic necessity and above which it is an economic luxury. These economic conditions have been reached in the countries of Europe and have recently caused a vigorous struggle between the medical profession and the government in England. It is useless to struggle with "whereas's" and "resolutions" against these economic facts. It is time for the American Medical Association and its constituent bodies to look these facts squarely in the face, to accept them and, by instituting fair control, to see that justice is given to the members of their profession and that an equal social justice is given to the poor whose necessity demands this sort of service.

After everything possible has been said of the division of medical practice into specialties, of the necessity of the poorly paid combining to secure cooperative insurance and medical treatment in their homes at a low rate, the field of the family doctor is still a large one and the demand for his services will ever remain, and a sorry day it will be when his influence has been lost and his interest forfeited.

And now, in conclusion, let me repeat that the day of the family doctor has not gone by. The individual, the family, need his wise counsel, his personal, friendly interest as much now as ever before. Our medical schools are wise in training men in general medicine in all its departments, that they may have intelligent perceptions of every phase of human suffering, and may be able to advise and direct their patients to the best sources of relief. The interest of the specialist must necessarily be general and lack the sympathetic, personal element mentioned by President Wilson as belonging to the family physician.

Just as the religious adviser is needed in spiritual matters or the lawyer in the affairs of business, so will the medical adviser, the family doctor hold his place in the American family. Our great country is a nation of families and so long as the family life remains the predominant feature of our social organization, just so long will the family doctor be a necessity, and his services be demanded, and it will be for him

> To give what none can measure, none can weigh,
> Simply to go where Duty points the way—
> Faith, honor, duty—duty calmly done
> That shouts no self-praise o'er a victory won—
> One bugle note his battle call,
> One single watchword—Duty—that is all![3]

109 *South Franklin Street.*

---

[2] Bristow: New York Med. Jour., June 4, 1913.

[3] Weir Mitchell.

The Coordination of the Specialties.—After all, if unity and coordination are to be continuously realized in the profession at large, some one must be found there particularly standing for them. There never has been, is not, and never *will be* other than one such agent. He is the family *doctor.* No matter what may be his crudities, weaknesses *and* inconsistencies, he is the only material we have out of which to make a sovereign. *And* it is he who must save the day if medicine is to remain a profession instead of becoming an *association* or *confederation* or congeries of trades, and if order and symmetry are to prevail therein. . . . *If* such be his high *destiny* let him get himself ready for it. The trouble with him has been that he has not apprehended his proper mission, or the real basis of his strength, worth *and* dignity. He has been trying to do detail work in all quarters, when it is his business chiefly to oversee. He has been panting along after the specialists and succeeding merely in playing second fiddle to them, when it is his prerogative to marshal and command them. He has well-nigh split his "one small head" in his endeavor to be an *authority* in everything, when from the nature of the case, he can be an *authority* on nothing but humanity.—W. B. Konkle, M.D., in *New York Medical Record.*

VERRUGA PERUVIANA. OROYA FEVER AND UTA

PRELIMINARY REPORT OF THE FIRST EXPEDITION TO SOUTH AMERICA FROM THE DEPARTMENT OF TROPICAL MEDICINE OF HARVARD UNIVERSITY

RICHARD P. STRONG, M.D.
Professor of Tropical Medicine, Harvard University
E. E. TYZZER, M.D.
Assistant Professor of Pathology, Harvard University
CHARLES T. BRUES, S.M.
Instructor in Economic Entomology, Harvard University
BOSTON
A. W. SELLARDS, M.D.
Instructor in Clinical Medicine, Johns Hopkins University
BALTIMORE
AND
J. C. GASTIABURU *
Director Municipal Laboratory of Hygiene
LIMA, PERU

The expedition was undertaken for the purpose of investigating certain obscure forms of tropical disease in South America, particularly verruga peruviana, as well as with the idea of collecting material to be used for the instruction of students in the various courses of tropical medicine to be inaugurated at Harvard University in November of the present year. After proceeding to Colon and Panama we continued down the west coast of South America to Buenaventura, Colombia, and thence to Guayaquil. In Buenaventura, Guayaquil and the vicinity, material relating to biting insects, animal parasites, caraate, frambesia, plague, malaria and particularly yellow fever was collected. The studies carried on in relation to these localities will be considered in the complete report of the expedition to be made at a later date.

From Guayaquil we proceeded to Peru, where at Lima, and in a number of the mountain towns in the interior, the major portion of the work of the expedition was carried on. In Peru the diseases particularly investigated were verruga peruviana, Oroya fever and uta. Peru, in a number of ways, may still be spoken of as a land of mystery. The unusual climatic conditions which prevail in certain parts of this country—situated as they are so near to the equator—have undoubtedly exerted an influence in producing in some respects a very unusual flora and fauna in these regions; therefore it is not so surprising, perhaps, that unusual diseases should be encountered in these localities.

VERRUGA PERUVIANA AND OROYA FEVER

From the remotest historical times the inhabitants of Peru are said to have suffered severely from this obscure disease. Over four centuries ago, during the reign of Inca Huayna Capac, thousands of lives were swept away, supposedly from this malady; and it is related that during the sixteenth century a quarter of the army of Francisco Pizarro perished from it. References may be found to the disease in Peruvian writings of the seventeenth and eighteenth centuries, and from 1843 to 1871 a number of additional papers relating to it were published, among which may be particularly mentioned those of Odriozola[1] in 1858, and of Dounon in 1871. In 1870 a severe outbreak of fever took place among the workmen building the Central Railway between Lima and Oroya, and it is estimated that at least seven thousand lives were lost in the verruga zones. At this time the complaint received the name of "Oroya fever," although it appears that it was not contracted in Oroya itself. In 1906, out of a force of two thousand men employed in tunnel work for the Central Railway, two hundred are known to have died of the disease. Previous to 1885 there ensued some discussion as to whether Oroya fever and verruga were related to one another, or whether the latter was a distinct disease. Aug. 27, 1885, Daniel Carrion, a medical student in Lima, and a native of Cerro de Pasco, Peru (a town situated in the mountains far above the localities in which the disease abounds), attempted to solve this problem by vaccinating both his arms with blood from a verruga tumor. It is related that twenty-three days later he began to suffer from Oroya fever, from which he died, October 5. From this experiment the conclusion was drawn by Peruvian physicians that verruga and Oroya fever were only different stages of the same disease, and this is the opinion which has been held by practically all of them up to the present time. In honor of Carrion's attempt to throw light on the nature of the disease, the febrile condition which has been regarded as the first stage of the malady is now generally known in Peru as "Carrion's fever." Although it has been stated that Carrion during his illness kept notes, and gave a minute description of his symptoms to his companions, unfortunately it appears that none of these were preserved and published. No accurate record of Carrion's case is available, and no necropsy was performed. It has been asserted since that he died of typhoid fever or of a more acute form of septicemia.

In 1901 and 1902 Barton[2] performed extensive bacteriologic investigations, and concluded that in the blood and organs at necropsy of persons dying from Carrion's fever a bacillus was present which, though similar to *Bacillus coli communis*, could be distinguished from it. The organism was said to cause either a fatal septicemia in animals, or a verruga-like eruption of the skin. Biffi and Carbajal[3] and Tamayo and Gastiaburú[4] investigated this bacillus, and reported that it was present constantly and in abundance in persons suffering from Carrion's fever, and was agglutinated by their serum, but was absent from persons suffering from verruga peruviana without fever, whose serum also showed no agglutination of this bacillus. They identified the organisms isolated as belonging in the paratyphoid group. They were unable to confirm Barton's results as to the production of a skin eruption by the bacillus, and concluded that it is not the specific agent in Carrion's disease, but is a secondary invader in verruga, and gives rise to the symptoms of a form of typhoid fever, which disease constitutes the *fiebre grave* of Carrion.[5] In 1903 Biffi[6] and Gastiaburú[7] noted in stained preparations of the blood the presence of granules in the red blood-cells which stained readily with the basic anilin dyes. The form and structure of these bodies was that of a coccobacillus or of irregular granules. In 1905, before the Sociedad Medica Unión Fernandina, Barton[8] described in the red blood-cells of two persons sick with severe malignant fever elements similar in morphology to bacilli. In 1909 he noted the presence of these elements in stained blood-specimens in fourteen additional cases and expressed the belief that they were protozoa and probably the specific agent of the infection. In 1909 Gastiaburú and Rebagliati[9] observed the bodies described by Barton and stated that they were probably protozoa and might be regarded as the pathogenic organism in Carrion's disease. Later, Mayer,[10] Gastiaburú and Rebagliati,[11] Monge[12] and several other observers have been inclined to believe that the bodies described by Barton were products of cell degeneration. Nocolle,[13] Letulle,[14] Escomel[15] and Galli Valerio[16] found acid-fast bacilli in the lesions of the skin from patients with verruga. Darling,[17] whose studies are based on a necropsy made in Panama the day following the death of a patient with verruga, complicated with tuberculosis, suggests that the acid-fast bacilli previously described were really tubercle bacilli occurring in cases complicated by tuberculosis. Still more recently Gastiaburú and Rebagliati[10] have found in the liver and skin lesions of a verruga patient in the eruptive phase certain bodies, at times endoglobular in leukocytes and other cells and at other times free, which from their staining reactions and morphologic appearance they regarded as probably organisms of the genus *Leishmania*. Rebagliati also found certain endoglobular bodies which he considered to be remnants of nuclear disorganization of the erythrocytes, which suggested that Barton's bodies might be chromatin filaments, segregated from the nuclei of the erythroblasts.

---

* Dr. Gastiaburú took part in the investigations carried on in Lima.

[1] Odriozola: La Maladie de Carrion. Paris, Carré et C. Naud, 1898.

[2] Barton: Crón. méd., Lima, 1901, xviii, No. 301, p. 193; No. 302, p. 210; 1902, xix, No. 334, p. 348.

[3] Biffi and Carbajal: Crón. méd., Lima, 1904, xxi, No. 379, p. 285; 1903, xx, No. 346, p. 149; Arch. f. Schiffs- u. Tropen-Hyg., 1908, xii, 1.

[4] Tamayo and Gastiaburú: Gac. d. l. Hosp., 1905, ii, No. 46, p. 516. Crón. méd., Lima, 1905, xxii, No. 406, p. 335; No. 407, p. 349; 1906, xxiii, No. 429, p. 327; 1907, xxiv, No. 453, p. 321; Gac. d. l. Hosp., 1906, iii, No. 62, p. 107.

[5] Biffi believed that it was not proved that verruga peruviana and the severe fever of Carrion were two stages of one and the same disease (Footnote 3).

[6] Biffi: Crón. méd., Lima, 1903, xx, No. 346, p. 149.

[7] Gastiaburú: Crón. méd., Lima, 1903, xx, No. 356, p. 314.

According to the generally accepted opinion among the physicians of Peru at the time of our arrival in Lima, the disease verruga peruviana in the severe type begins with an initial stage known as the *fiebre grave* of Carrion, which is characterized by a fever which lasts from fifteen to thirty days, profound anemia, prostration and a high mortality. If the patient does not die in this stage the fever begins to abate, and the eruptive, or verruga, stage commences. If the eruption is generalized and abundant, then it is stated that the patient is sure to recover. In the chronic or mild type of the disease, which is said to comprise the great proportion of the cases, there is moderate fever of intermittent or remittent type, and pains in the joints are common; more or less anemia is present. The eruption is said to be the culminating phase in both forms, and it appears under various types which, according to the special characteristics they reveal, are termed "miliary," "nodular" or "mulaire."

Our investigations concerning the etiology of verruga peruviana and of Oroya fever were carried on in the Municipal Laboratory of Hygiene, and in the hospitals of the city of Lima, and in the mountain towns of Santa Eulalia, San Bartolomé, Surco, Cocochacra and Matucana, and in the vicinity of these towns. In the present report it is merely the intention briefly to enumerate some of the results of these studies. From our investigations we have concluded that verruga peruviana and Oroya fever represent two distinct diseases. The former is due to a virus which may be transmitted to animals by direct inoculation and which produces definite lesions in them, whereas the latter is due to an organism parasitic in the red blood-corpuscles sufficiently distinct from the other hematozoa to be placed in a new genus. So far this organism has not been successfully transmitted to the lower animals. The parasite which we consider to be the cause of Oroya fever produces in man fever and in severe infections a rapid and very pernicious form of anemia, which results in extreme prostration and frequently in death. In one of the cases studied by us, which resulted fatally, the red blood-cells numbered less than one milliom per cubic millimeter. At the necropsy in this case, in addition to the evidences of a very severe anemia, the spleen was enlarged and showed hemorrhagic infarctions. No other organism to which death could be ascribed was found present. In this uncomplicated case there was no eruption of verrugas. Both intravenous and intratesticular inoculation of rabbits, as well as intravenous inoculation of a monkey, with large amounts of defibrinated blood from severe Oroya fever cases did not produce any noticeable results; and the parasites observed in the blood in the cases in man were not found in the blood of the inoculated animals. The parasites were observed in the blood in the cases in man both in fresh and in stained preparations. According to Barton,[18] the bodies observed by him could not be detected in the fresh blood, and it has been stated that their refractive index must coincide with that of the erythrocyte. The organisms, we observed, consisted of rod-like bodies and more rarely of rounded ones, situated within the red cells.

Fresh Blood Preparations.—Although in fresh blood preparations the organisms are frequently difficult to detect, and at times appear to lie deep in the substance of the red blood-cells, nevertheless with good illumination and an oil-immersion apochromatic objective, they may at times be distinctly observed. In form they are rounded or rod-shaped, though the rods are not always straight in outline. The rods measure approximately from 1.5 to 3 microns in length and the rounded bodies from 0.5 to 1.5 microns in diameter. In severe infections, red corpuscles in almost every field of the microscope are invaded by the parasites, and numbers of both rounded bodies and bacillary forms are frequently observed in a single cell. The organisms are endowed with definite motility, which amounts to slow transition and is totally distinct from that of pedesis. To observe this it appears advisable previously to warm the slide and to examine the preparation immediately after it is made. In red cells in which several of the parasites are visible it is easy to observe their frequent change of position within the cell and with reference to one another. The rod-shaped forms were observed to glide slowly in the direction of their long diameter and to exhibit a slight bending in their transition in the red cell, and at times both these and the rounded bodies might be seen to occupy in turn all portions of it. They were never observed to appear as cross forms, as distinct spirals or markedly S-shaped. Occasionally at the two poles of the organism a dot or bead-like appearance was observed. On account of their small size the rounded bodies are more difficult to describe in fresh specimens and it can to the statistics of Peruvian physicians, in a large percentage of verruga peruviana cases the blood examinations shows an infection with malarial parasites; and in one of the twenty-two cases of verruga peruviana which we studied a concomitant infection with Oroya fever was observed.

---

[8] Barton: Crón. méd., Lima, 1909, xxvi, No. 481, p. 7.
[9] Gastiaburú and Rebagliati: Crón. méd., 1909, xxvi, No. 501,
p. 378.
[10] Mayer: Centralbl. f. Bact., 1910, lvi, 304.
[11] Gastiaburú and Rebagliati: Crón. méd., Lima, 1912, xxix,
No. 571, p. 644 and 572, p. 651.
[12] Monge: Jour. London School Trop. Med., 1912, i, Part 2, p.
163; Crón. méd., Lima, 1912, xxix, No. 571, p. 640.
[13] Nicolle: Ann. d. l'Instit. Pasteur, Vol. 12, 1898., p. 591.
[14] Letulle: Compt. rend., Soc. de biol., 1898, p. 764. Oriozola,
E.: Monograph la maladie de Carrion, Paris, 1898, p. 201.
[15] Escomel: Ann. de dermat. et de syph., 1902, iii, 961.
[16] Valerio, Galli: Centralbl. f. Bakteriol., 1911, lviii, Part 1,
Orig., p. 228.
[17] Darling, S. T.: Verruca Peruana, The Journal A. M. A.,
Dec. 23, 1911, p. 2071.

[18] Barton: Quoted by Darling (Footnote 17).

It is quite evident that verruga peruviana represents an entirely distinct disease, and that it is not a form of frambesia or of syphilis. In our studies both of these diseases were excluded. The disease owes its origin to a virus which produces on intratesticular inoculation into rabbits a characteristic local lesion. The incubation period varies in rabbits from ten to twenty-two days. So far fifteen rabbits have been successfully inoculated, and the virus is now in its third transplant in these animals. In dogs and monkeys, cutaneous and subcutaneous, and sometimes intraperitoneal, inoculation has given rise after from eleven to seventeen days to localized lesions, which sometimes resemble closely those observed in man. The virus is also in its third transplant in monkeys. Jadassohn and Seiffert,[23] Mayer, da Rocha-Lima and Werner[24] have also been successful in single cases of verruga peruviana in transmitting the virus to monkeys.

The Wassermann reaction was negative with one exception in the cases of verruga which we examined. Moreover, no fixation of complement could be obtained when a specific antigen was substituted for the antigen used in the routine Wassermann reaction.

The biologic examination of an extract prepared from a cutaneous nodule in a case of verruga showed the presence of a hemolysin which was active in relatively high dilutions. The properties of this hemolysin are still under investigation.

Having become convinced that Oroya fever and verruga peruviana were two entirely distinct diseases, and having secured through the kind assistance of Dr. Matto, professor of bacteriology in the University of Lima, a volunteer (a Chilean), we made a direct inoculation from two cases of verruga peruviana. A portion of a skin lesion from each of the two patients of verruga was removed, and within twenty minutes of the time of this operation the skin of the normal person over the left shoulder was thoroughly scarified, and a portion of the nodules removed from the verruga patients thoroughly rubbed into the scratches. The vaccination scratches healed entirely at the end of about ten days, and the skin appeared normal. On the sixteenth day two small groups of cherry-red papules at the end of some of the vaccination scratches appeared, and a few days later another small group became visible. These increased slowly in size until the thirty-fifth day, when two of the groups were removed. The blood examination of the vaccinated person never revealed any of the parasites observed in the blood of Aroya fever cases, and no appreciable anemia developed. No generalized eruption occurred and the person was in good health at the time of our departure from Lima. It seems hopeful that by using the virus of verruga peruviana after one or two passages through the rabbit's testicle, or possibly through several more in monkeys, a successful means of vaccination against verruga peruviana may be obtained.

UTA

Uta is a disease which has existed in Peru since prehistoric times, and the lesions of which have been supposedly depicted on the ancient huacos of the Incas. It has been stated by various authorities that the disease represented a form of syphilis, or one of prehistoric leprosy, or a special form of lupus vulgaris. In recent years two extensive monographs on the subject have appeared from Peru, one by Tamayo[25] in 1908 and the other by Palma[26] in 1909. Tamayo regarded the disease as a special form of lupus vulgaris. Palma concluded that it was a specific disease, which was not to be confounded with other South American maladies, and that it was not a form of tuberculosis. The disease was observed by Past-Assistant Surgeon Perry, United States Public Health Service, in his travels through Peru; and by Surgeon-General Blue who, in conversation with one of us prior to our departure, mentioned its occurrence among the schoolchildren of Surco, one of the Peruvian mountain towns in which the disease occurs abundantly. In both Surco and Otao (the latter town deriving its name from the prevalence of the disease there) a large proportion of the inhabitants are either afflicted with the disease, or show the disfiguring scars which have resulted from a previous attack, on the face, arms or legs. From our investigations we were able to show that uta is due to a species of Leishmania. The flagellate stage of the organism has been obtained by us, and animals have been successfully inoculated from a human case.

ACKNOWLEDGMENTS

In connection with the investigations of the commission we wish to express publicly our thanks, particularly to the Corporation of Harvard University for generously providing funds for the maintenance of the expedition and to the dean of the Harvard Medical School and the dean of the Graduate School of Medicine for their interest and assistance in the organization of the expedition; to the United Fruit Company of Boston for generously furnishing us with transportation from New York to Colon and return; to the Royal Mail Steamship Company and the Pacific Steamship Navigation Company for furnishing us free transportation from Balboa to Guayaquil and from Callao to Balboa, and to the Panama Railroad Company for courtesy in regard to handling our baggage across the Isthmus. We also wish to express particularly our gratitude to Mr. J. W. Blaisdell, assistant manager of the Central Railroad Company of Peru, who very generously on several occasions furnished us with special railway facilities in our studies carried on between Lima and Oroya, and to Dr. H. F. Bailey, Cerro de Pasco Railway, for many kindnesses during our expedition from Oroya to Cerro de Pasco. To the following physicians and officials we wish to express our grateful acknowledgment for many kindnesses and for assisting us in obtaining material in connection with our studies: Drs. Deeks, Perry, Caldwell, Darling and James in Panama; Dr. Parker, Consul General Baker and Dr. Pereja and other officials of the Board of Health in Guayaquil; to President Billinghurst of Peru and to the American minister, Mr. Henry Clay Howard, the introductor of ministers, Mr. Cisneros, and Drs. Odriozola, Arce, Grana, Barton, Hercules and Matto in Lima. We also wish to express our great appreciation of the very valuable assistance rendered us by Dr. J. C. Tello, director of the ethnologic museum, Peru, in facilitating our obtaining material and in assisting us in making arrangements in regard to some of our investigations. Without Dr. Tello's assistance some of our investigations would probably not have been brought to so successful an issue as they were. A more detailed statement of our appreciation of the kindness shown us by a number of the above-mentioned physicians will be made in the complete report of the expedition. Finally, we wish to express our deep appreciation of the efficient services rendered by Miss Nora Dwyer, who accompanied us as secretary on the expedition.

---

[23] Jadassohn and Seiffert: Ztschr. f. Hyg. u. Infektionskrankh., 1910, lxvi, 247.

[24] Mayer, Rocha-Lima and Werner: München. med. Wchnschr., 1913, lx, 739.

[25] Tamayo: La Uta en el Peru, Lima, 1908, p. 1; Proceedings IV the Pan-American Congress, Santiago de Chile, December, 1908.

[26] Palma: Boletin del Ministerio de Fomento, 1908, vi, No. 10, p. 1

only be stated that they change their position within the cell.

Stained and Fixed Preparations.—The rod-shaped forms measure approximately from 1 to 2 microns in length and from 0.2 to 0.5 microns in thickness. They are usually curved, and occur singly or end to end in pairs, or in chains of three, four and five. V forms, probably representing dividing organisms, are frequent. When numerous they often lie parallel to one another. Cross forms are rare and may be due to organisms being superimposed; Y forms are also infrequent but not numerous. The ends of the rods in stained preparations are intensely colored. Single free rods show a deep red or purplish granule which may be of the nature of chromatin and gives the appearance of a swelling at one extremity, the rest of the rod having a more bluish tint, sometimes deepest at the opposite end. Other rods may be blue throughout or have the deeply stained granule at both ends, while others are beaded with blue or deep reddish granules.

The rounded forms are roughly from 0.3 to 1 micron in diameter, the larger ones being considerably thicker than any of the rods. The greater proportion of these, although rounded, are slightly oval or pear-shaped; some are considerably larger than the rods and the deeply stained granule is proportionately larger and is likewise differentiated from the more blue-tinted cytoplasm. They occur singly or in groups which suggest previous division.

The red cell may contain from one to as many as thirty of the above-described elements. Nucleated red cells at various stages of development are found infected. From the anemia which occurs in this infection, it is to be presumed that the red cells containing the parasites are ultimately destroyed.

CLASSIFICATION

From the description given above it is evident that we have to do with a species of organism possessing some of the characteristics described for the *Anaplasmata* or of the *Theileria,* but also differing widely in some respects from the characteristics described for each of these genera. The rounded bodies resemble the *Anaplasmata* as first described and illustrated by Theobold Smith[19] in 1903 and later by Theiler[20] in their form and size and in the fact that they apparently consist entirely or almost entirely of chromatinic substance. Although the bacilliform or rod-shaped bodies predominate in our specimens, their appearance and staining reactions are considerably unlike those of the rod-shaped bodies observed in the *Theileria,* and cross forms have not been observed. Moreover, their movements are unlike those of the *Piroplasmata.* While the organism at first sight may be regarded from its morphology alone as a species of bacterium, this idea is not supported by further study. It is essentially a parasite of the red blood-cell; attempts to cultivate it on various culture mediums have been unsuccessful and the inoculation of large amounts of blood from a severe case of Oroya fever has failed to infect a monkey or rabbits.

From the present evidence it would appear that the organism which we have observed in the blood in Oroya fever belongs to a group of micro-organisms intermediate between the protozoa and the bacteria, just as perhaps the spirochetes form another such group. It resembles in its characteristics more closely those given for two species of *Grahamella N. G. Protista* described and classified by Brumpt[21] in October, 1911, although in preparations stained by Giesma's or Wright's stains the presence of reddish-stained granules and of bluish cytoplasm in many forms would favor its relationship to the protozoa. It may be preferable, however, until further information as to its nature is acquired, to follow Brumpt in his classification of *Grahamella,* and to go no further than merely to place this species for the present with the *Protista.* While up to the present we have not had the opportunity of studying the bodies in the erythrocytes of the mole described by Graham-Smith[22] and others and classified by Brumpt as parasites, it would appear from the descriptions in the literature that these bodies constitute an organism of a species closely related to the one which we have encountered in the blood in Oroya fever. As in the genus *Grahamella,* the organism of Oroya fever is characteristically rod-shaped and evidently multiplies by binary transverse division. Apparently, however, the resulting elements do not always separate at once but remain connected in chains of three, four and five. On the basis of this difference and of other additional characteristics such a motility, staining reactions and size, it appears preferable to propose provisionally for the organism studied by us the name of *Bartonia bacilliformis.* The generic name of *Bartonia* is suggested owing to the fact that Barton in 1909 stated his belief that the inclusions earlier observed in the red cells were protozoa.

The genus may be defined for the present as follows: Organisms possessing peculiar staining reactions, cytoplasm and chromatinic substance differentiated with difficulty; rounded or bacilliform in shape, sometimes occurring in chains of several segmenting organisms; reproduction by binary transverse division; endowed with independent motility; and living as parasites in the red blood-corpuscles.

As a type species the parasite of Oroya fever may be briefly described as follows:

Bartonia bacilliformis. Gen. et sp. nov. Parasites consisting of rounded or oval forms or of slender straight, curved or bent rods occurring either singly or in groups, but characteristically in chains of several segmenting organisms, sometimes swollen at one or both ends and frequently beaded. Reproduction occurs by binary division. Endowed with independent motility, moving in the direction of the long diameter, living within the red blood-corpuscles of man and producing a grave form of anemia known in Peru as Oroya fever. Stained preparations suggest differentiation of cytoplasm and nuclear material.

VERRUGA PERUVIANA

Verruga peruviana is a disease particularly characterized by an eruption on the skin and occasionally on the mucous membranes, particularly of the mouth and throat. The lesions present great variations in appearance. The distribution of the cutaneous eruption resembles somewhat that seen in yaws; but in many other respects the lesions of the disease are entirely distinct. In uncomplicated cases, neither the parasites of Oroya fever nor those of malaria are present in the blood; though as verruga peruviana is contracted in regions in which Oroya fever and malaria are common diseases among the inhabitants, and visitors are likely to contract such maladies, it is not surprising that concomitant infections with these parasites frequently occur. Indeed, according to the statistics of Peruvian physicians, in a large percentage of verruga peruviana cases the blood examinations shows an infection with malarial parasites; and in one of the twenty-two cases of verruga peruviana which we studied a concomitant infection with Oroya fever was observed.

---

[19] Smith, Theobald: Reports Bureau Animal Industry, 1891-1892, p. 177, and Plate iv, Figs. 1, 2, 3, p. 302.

[20] Theiler: Ztschr. f. Infektionskrankh. der Haustiere, 1910, viii, 39.

[21] Brumpt: Bull. de la Soc. pathol. Exotique, 1911, iv, 514.

[22] Graham-Smith: Jour. Hyg., 1905, v, 453. Thompson: ibid., 1906, vi, 574. Balfour: Report Welcome Research Laboratory, 1906, ii, 1911, iv; Bull. de la Soc. path. exotique, 1911, iv, 660. Leger: ibid., 1913, vi, 247.

It is quite evident that verruga peruviana represents an entirely distinct disease, and that it is not a form of frambesia or of syphilis. In our studies both of these diseases were excluded. The disease owes its origin to a virus which produces on intratesticular inoculation into rabbits a characteristic local lesion. The incubation period varies in rabbits from ten to twenty-two days. So far fifteen rabbits have been successfully inoculated, and the virus is now in its third transplant in these animals. In dogs and monkeys, cutaneous and subcutaneous, and sometimes intraperitoneal, inoculation has given rise after from eleven to seventeen days to localized lesions, which sometimes resemble closely those observed in man. The virus is also in its third transplant in monkeys. Jadassohn and Seiffert,[23] Mayer, da Rocha-Lima and Werner[24] have also been successful in single cases of verruga peruviana in transmitting the virus to monkeys.

The Wassermann reaction was negative with one exception in the cases of verruga which we examined. Moreover, no fixation of complement could be obtained when a specific antigen was substituted for the antigen used in the routine Wassermann reaction.

The biologic examination of an extract prepared from a cutaneous nodule in a case of verruga showed the presence of a hemolysin which was active in relatively high dilutions. The properties of this hemolysin are still under investigation.

Having become convinced that Oroya fever and verruga peruviana were two entirely distinct diseases, and having secured through the kind assistance of Dr. Matto, professor of bacteriology in the University of Lima, a volunteer (a Chilean), we made a direct inoculation from two cases of verruga peruviana. A portion of a skin lesion from each of the two patients of verruga was removed, and within twenty minutes of the time of this operation the skin of the normal person over the left shoulder was thoroughly scarified, and a portion of the nodules removed from the verruga patients thoroughly rubbed into the scratches. The vaccination scratches healed entirely at the end of about ten days, and the skin appeared normal. On the sixteenth day two small groups of cherry-red papules at the end of some of the vaccination scratches appeared, and a few days later another small group became visible. These increased slowly in size until the thirty-fifth day, when two of the groups were removed. The blood examination of the vaccinated person never revealed any of the parasites observed in the blood of Aroya fever cases, and no appreciable anemia developed. No generalized eruption occurred and the person was in good health at the time of our departure from Lima. It seems hopeful that by using the virus of verruga peruviana after one or two passages through the rabbit's testicle, or possibly through several more in monkeys, a successful means of vaccination against verruga peruviana may be obtained.

UTA

Uta is a disease which has existed in Peru since prehistoric times, and the lesions of which have been supposedly depicted on the ancient huacos of the Incas. It has been stated by various authorities that the disease represented a form of syphilis, or one of prehistoric leprosy, or a special form of lupus vulgaris. In recent years two extensive monographs on the subject have appeared from Peru, one by Tamayo[25] in 1908 and the other by Palma[26] in 1909. Tamayo regarded the disease as a special form of lupus vulgaris. Palma concluded that it was a specific disease, which was not to be confounded with other South American maladies, and that it was not a form of tuberculosis. The disease was observed by Past-Assistant Surgeon Perry, United States Public Health Service, in his travels through Peru; and by Surgeon-General Blue who, in conversation with one of us prior to our departure, mentioned its occurrence among the schoolchildren of Surco, one of the Peruvian mountain towns in which the disease occurs abundantly. In both Surco and Otao (the latter town deriving its name from the prevalence of the disease there) a large proportion of the inhabitants are either afflicted with the disease, or show the disfiguring scars which have resulted from a previous attack, on the face, arms or legs. From our investigations we were able to show that uta is due to a species of Leishmania. The flagellate stage of the organism has been obtained by us, and animals have been successfully inoculated from a human case.

ACKNOWLEDGMENTS

In connection with the investigations of the commission wish to express publicly our thanks, particularly to the C poration of Harvard University for generously providing fu for the maintenance of the expedition and to the dean of Harvard Medical School and the dean of the Graduate S of Medicine for their interest and assistance in the orga tion of the expedition; to the United Fruit Company of ton for generously furnishing us with transportation New York to Colon and return; to the Royal Mail Stea Company and the Pacific Steamship Navigation Company furnishing us free transportation from Balboa to Guay and from Callao to Balboa, and to the Panama Railroad pany for courtesy in regard to handling our baggage a the Isthmus. We also wish to express particularly our g tude to Mr. J. W. Blaisdell, assistant manager of the C Railroad Company of Peru, who very generously on se occasions furnished us with special railway facilities in studies carried on between Lima and Oroya, and to Dr. B. Bailey, Cerro de Pasco Railway, for many kindnesses du our expedition from Oroya to Cerro de Pasco. To the foll ing physicians and officials we wish to express our grate acknowledgment for many kindnesses and for assisting us obtaining material in connection with our studies: Drs. Dee Perry, Caldwell, Darling and James in Panama; Dr. Park Consul General Baker and Dr. Pereja and other officials of t Board of Health in Guayaquil; to President Billinghurst Peru and to the American minister, Mr. Henry Clay Howard the introductor of ministers, Mr. Cisneros, and Drs. Odriozola Arce, Grana, Barton, Hercules and Matto in Lima. We also wish to express our great appreciation of the very valuable assistance rendered us by Dr. J. C. Tello, director of th ethnologic museum, Peru, in facilitating our obtaining material and in assisting us in making arrangements in regard to some of our investigations. Without Dr. Tello's assistance some of our investigations would probably not have been brought to so successful an issue as they were. A more detailed statement of our appreciation of the kindness shown us by a number of the above-mentioned physicians will b made in the complete report of the expedition. Finally, we wish to express our deep appreciation of the efficient services rendered by Miss Nora Dwyer, who accompanied us as secretary on the expedition.

---

23. Jadassohn and Seiffert: Ztschr. f. Hyg. u. Infektionskrankh., 1910, lxvi, 247.

24. Mayer, Rocha-Lima and Werner: München. med. Wchnschr., 1913, lx, 739.

25. Tamayo: La Uta en el Peru, Lima, 1908, p. 1; Proceedi IV the Pan-American Congress, Santiago de Chile, December, 1 vi, No. 1

26. Palma: Boletin del Ministerio de Fomento, 1908, p. 1

lowed, such as some effervescing water, ginger ale, some pungent mint chewing-gum, or even a simple peppermint lozenge. Of course the value, in such conditions, of vegetable sours such as lemonade, orangeade or a piece of orange is well understood. These will increase the mouth secretions and prevent drying of the mucous membrane, which is such a frequent cause of ulceration.

Various preparations of glycerin diluted with water, with or without boric acid or borax, or boroglycerid, or milk of magnesia, are all valuable in preventing or aiding in the healing of a sore mouth.

If the tincture of iodin does not heal an ulcer or fissure, one or two applications of either the stick nitrate of silver or a 25 per cent. solution, applied by means of a swab, will generally cause healing.

If the patient is too ill for strenuous or perfect cleanliness of the mouth, as soon as convalescence is established extra care should be given the mouth and teeth.

It should not be considered that a patient has been thoroughly examined until the condition of the mouth has been investigated. As before stated, too many chronic diseases have their source and continuation from diseases of the gums or from neglected, decayed teeth, to say nothing of diseased tonsils. A fetid, bad breath should always be investigated, as it is generally due to a chronic inflammation in the mouth. While a large portion of adults over 40 have more or less pyorrhea alveolaris, a large number of these patients may have the condition entirely prevented, and by various methods to-day many patients are cured of what was long considered an incurable condition.

Riggs' disease is a disease of the bone, really an alveolitis, and if the process continues the alveolar process becomes so damaged that the teeth become loosened and are lost. This serious condition begins at the juncture of the teeth with the gums, and perhaps the most frequent cause is neglected tartar acting as an irritant and allowing inflammation to start in the gum tissue. While tartar deposits are not abnormal to most mouths, it must be removed frequently in order that the teeth and gums will not be injured. If it remains long it becomes hard, and although the irritation from it may not always cause inflammation on account of a healthy person constantly producing antitoxins of various types to ward off and combat pus infection, still such deposits are always sources of danger, and even if a well person tolerates such irritants, if he becomes ill, infection of the gums rapidly begins. If the gums become really inflamed, they naturally swell and may pout away from the teeth. This allows the mouth secretions, saliva, food and germs to become lodged deep in the pocket between the swollen gum and the teeth, and serious inflammation is the result.

The danger from infected cavities in teeth is perhaps understood by patients, and if not understood, more or less frequent attacks of severe pain causes them to seek a dentist for treatment of such conditions; but the laity does not thoroughly understand the danger from infected gums, especially as they may not be attended by pain. Consequently we must teach in schools and in families how important is hygiene of the mouth. Regular visits to the dentist are as important as any other branch of preventive medicine. Besides efficiency in their treatment, the dentists are to-day doing splendid educational work in preventing the development of pyorrhea alveolaris.

Prevention of the disease means at least twice daily brushing of the teeth carefully with a brush stiff enough to remove the first soft deposits of tartar and to remove particles of food that remain on or between the teeth. The particular tooth-paste or powder selected depends on the individual choice. It should not be too soapy to prevent removal of soft tartar deposits. It should not be harsh enough to injure the enamel.

Recent investigations by Gies[1] of Columbia seem destined to revolutionize our belief in regard to what sort of substances are best to use in cleaning and preserving the teeth. He emphasizes the fact that the direct factor in decay of the teeth is acid, and this acid is believed to be lactic. Mucin films depositing on the teeth may retain this acid or acid-yielding material and thus continue the acid irritation, and this acid later "dissolves the calcium and other inorganic matter from the enamel," and later penetration of the dentin occurs. Of course during this process micro-organisms develop more or less and add to the local disturbance.

Gies has found that so-called antiseptic mouth-washes and alkaline washes do not wash off or dissolve this adherent mucin, and therefore are not effective in preventing decay of the teeth. He quotes Pickerill[2] and a discussion in the New York Academy of Medicine[3] and Dr. Howe[4] and records his own investigations to show that the vegetable acids, such as diluted vinegar and the fruit juices and their acids, are the most successful cleansing substances that can be used on the teeth. These investigators all state that a diluted vinegar is perfectly successful as a cleanser of the teeth. They also believe that starches and sugars should never be eaten alone, but should be certainly followed by some acid substance, as some of the acid fruits or some of the vegetable sours. After most meals, therefore, it is good sense to eat a little fruit, and on going to bed perhaps the most successful cleanser of the teeth is a little sour fruit or diluted fruit vinegar.

Children and patients should also be taught to brush the gums as well as the teeth, and when it is needed a patient should be taught to massage the gums. The use of wooden toothpicks to remove particles between the teeth that cannot be removed by the tooth-brush should be approved.

Many patients' teeth are so close together that particles of food remain lodged between them and cannot be removed in any other way. Dental floss should certainly be used occasionally, or frequently, if possible. If inflammation actually occurs in the gums or around a tooth, the advice and care of a dentist are needed.

When mouth-washes and the proper use of iodin by the dentist do not cure a pyorrhea, some success has been obtained from the use of autogenous vaccines.

Germs may be swallowed into the stomach, where they are more or less constantly killed, but they may not always be killed, and they may pass to the intestine and there grow and be absorbed or cause some local inflammation, such as appendicitis.

Another frequent source of danger from such mouth germs is absorption into the lymph-vessels. They may thus be a cause for enlarged cervical lymph-nodes which attempt to arrest the spread of the infection. These lymph-nodes may not only get into serious trouble themselves, but may sooner or later allow the poison or germs to be absorbed into the blood, and then systemic infection begins.

(To be continued)

---

1. Gies, William J.: Household Arts Review, May, 1913, p. 12.
2. Pickerill: Baillière, Tindall and Cox, London, 1912.
3. Jour. Allied Dental Soc., 1912, vii, 397 and 474.
4. Howe: Jour. Allied Dental Soc., December, 1912, p. 277.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 8, 1913

A NEW INDICATOR OF PATHOLOGIC TISSUE CHANGES

In the modern investigation of neoplasms which is being pursued so vigorously it has been of fundamental importance to ascertain the specific peculiarities of the abnormal tissues. When once it is made clear precisely wherein pathologic growths differ from the normal tissues which they accompany or supplant, and what are the stimuli which initiate and promote their development, a great step in advance will have been taken. So far as the morphologic features are concerned much valuble information has long been at hand; but after all, structural anomalies are merely the formal expression of alterations due to physical or chemical changes either within the cells themselves or in their immediate environment. The solution of the underlying problems of the development of neoplasms is closely bound up with the knowledge of the inciting causes. The possibility of an artificial inhibition or retrogression of such growths is likely to rest on similar information.

Actual chemical analysis of neoplasms has as yet thrown little light on their individuality. When biologists first pointed out how sensitive living cells are to slight alterations in their environment, how readily they respond in most diverse ways to changes in the proportions of the inorganic elements, for example, which bathe the protoplasm, hopes ran high for rapid progress in the study of tumor growth. But blood and lymph and tissue juices exhibit extreme intricacies of composition in almost endless details. The make-up of these body fluids is continually undergoing changes which represent themselves in new equilibria of reaction so that it is almost as difficult to postulate from moment to moment what is the normal of such complex mixtures as it is to detect the deviations therefrom. If, indeed, the difficulties of exact estimation of the inorganic components of the tissues are considerable, the detection of foreign organic compounds such as may represent products of pathologic change is incomparably more difficult. Nor is the situation made easier by the fact that profound biologic change is often inaugurated by extremely slight chemical provocation. The phenomena of anaphylaxis, which seem almost to baffle chemical skill in their interpretation owing to the minute quantities of actual reagent substances involved, bear witness to this fact.

Whenever the investigation of a scientific problem reaches a complexity which taxes the resources of current methods the advent of new or improved modes of diagnosis and of novel indices of altered conditions are welcomed. In this spirit we refer to the unique yet simple biologic method which Professors Underhill and Woodruff of Yale University have adopted to demonstrate pathologic changes that may arise as the result of chemical disturbances.[1] Arguing that the complications which are involved in employing the complexly organized higher animals as test subjects for the detection of abnormalities in tissue extracts, etc., are considerably diminished when the organism is reduced to the lowest terms, the single cell, they have introduced the unicellular animal, paramecium, as an indicator of pathologic alterations in tissues. The justification for this is based on the fact that in "pedigreed" races of this protozoan the rate of reproduction is a most accurate indication of the chemical composition and temperature of the environment, as remarkably slight variations in the culture medium produce characteristic responses by the animals. Indeed, the rate of reproduction may be said to be a function of the environment of the cell.[2]

The plan of the Yale investigators was essentially to compare the rate of reproduction of suitable subcultures of paramecium bred on extracts of comparable normal and pathologically altered tissues or organs. Such a procedure is obviously not without pitfalls, and calls for an abundance of well controlled statistics. It is not without interest to note incidentally that the particular "biologic reagent" employed in this instance was the pedigreed race of *Paramecium aurelia* which Professor Woodruff has had under daily observation for more than six years and through more than 3,700 generations.[3] To test the efficiency and limitations of the protozoan protoplasm as an indicator of pathologic change, preliminary investigations were conducted with normal and nephritic kidneys. These were satisfactory in that they failed to indicate changes due to purely physiologic or anatomic circumstances. Thus there was no essential difference in the division rate of paramecium when subjected to the influence of extracts prepared from the separate kidneys of one animal or from kidneys of different individuals. Extracts made from the kidney of a starving animal behave in a manner identical with those from a well-fed one. On the other hand, the division rate is markedly depressed by the renal extracts of individuals with tartrate nephritis, with every evidence that the pathologic change in the kidney tissue itself (rather than tartrate accumulated in the organ) is responsible for the action observed on paramecium.

---

[1] Underhill, F. P., and Woodruff, L. L.: Protozoan Protoplasm as an Indicator of Pathologic Changes. I. In Nephritis, Jour. Biol. Chem., 193, xv, 385; II. In Carcinoma, ibid., p. 401. An abstract of these papers will be found in The Journal A. M. A., Oct. 4, 1913, p. 1325.

[2] Woodruff, L. L.: Biochem. Bull., 1912, i. 396; Woodruff, L. L., and Bunzel, H. H.: Amer. Jour. Physiol., 1909, xxv, 190; Woodruff, L. L., and Baitsell, G. A., ibid., 1911, xxix, 147.

[3] See Woodruff, L. L.: Biologisches Centralbl., 1913, xxxiii, 31.

Although there is reason to suspect that in carcinoma abnormal products may arise through the local development of the neoplasm and then exert a remote detrimental effect on the organism as a whole, there has been little compelling evidence for this assumption. Underhill and Woodruff have applied their protozoan test method in the study of primary carcinoma of the human breast as a characteristic type of abnormal growth. In so far as one may judge from the observations on a limited number of cases, extracts of such neoplasms, in certain concentrations, show a very pronounced depressant influence on the division rate of paramecium when compared to that obtained with the same protozoan race bred in normal mammary tissue extract. In some instances the depressant influence may be so profound as to lead to the death of the paramecia within two or three days. Underhill and Woodruff are convinced that the differences in concentration which may exist between the normal and abnormal breast tissue extracts cannot be held responsible for the detrimental action of the abnormal extracts on paramecium; for when the concentrations of the two extracts under discussion are made as nearly equal as possible the depressant phenomena still appear in the carcinoma extracts.

It is too early to theorize at length on the possible significance of such striking results. They may, of course, be due to the absence or to a deficiency in the solutions of substances essential for the life processes of paramecium, or to the presence of substances inimical to protoplasm. If the latter hypothesis is correct, it is possible, as the investigators themselves point out, in view of the probable greater concentration of these substances in the neoplasm, that their absorption may contribute to the production of the symptoms characteristic of the development of cancerous growths in man. An efficient new method of study is almost always likely to yield a rich harvest of applicable facts. The present interesting findings encourage us to look forward to additional contributions along these promising lines in the widely cultivated field of cancer research.

ANOMALIES OF SUICIDE

Speculation has been concerning itself with the motives in the minds of those unfortunates who find it necessary to end their earthly sorrows in some violent manner. How important a feature this is in the total mortality list is shown by the fact that about fifteen thousand lives a year are lost in the United States by this route. The suicide-rate for 1912, according to Hoffman,[1] for the hundred largest cities of the country, comprising a total population of 23,336,000, is somewhat less in 1912 than in 1910 and 1911, and considerably less than the rate in 1909 and 1908, which chronicled a much larger number of suicides than usual, probably because of business troubles consequent on the panic of 1907.

One thing clear about suicide statistics is that their number has been in direct ratio to the number of business failures. While the 1912 suicide-rate is somewhat consoling, the five-year rate as compared with each five years for the last twenty years shows how much suicides are increasing. The average suicide-rate for the five years from 1908 to 1912 was 20.2 per hundred thousand of population; for the five-year period from 1893 to 1897 it was 15.7. If any of the contagious diseases had a mortality-rate nearly one-third higher now than it had twenty-years ago, we should be much discouraged unless there was some promising method of prophylaxis in view.

Suicides are not most frequent in those parts of the country in which one would naturally expect them to be. Usually suffering is considered the most important factor in leading to suicide and therefore it would be expected that the cities with the largest variations of temperature, especially those subject to the extremes of heat and cold, would present the highest suicide mortality. *Almost exactly the opposite is true.* The three cities that head the list are in California—San Francisco with a suicide-rate of 50 per hundred thousand of population, San Diego with more than 40, and Sacramento with 37. Then comes Hoboken, N. J., with 34, followed by Los Angeles with 32 and Oakland, Cal., with 31, St. Louis coming in between the last-named two. All of the cities of California, then, have a high suicide-rate. Hoboken's rate is doubtless so high, partly because of its large Teutonic population, but much more because a number of those who contemplate suicide in the great city near it go across the Hudson River in the hope of escaping identification or at least avoiding the publicity likely to come in New York.

The cities of the country having the lowest suicide-rate are in the oldest-settled portions, especially in the South and in New England. In the last twenty of the hundred cities Massachusetts has eleven towns with a suicide-rate of 10 or less per hundred thousand. Augusta, Ga., has the lowest rate, 3.7, and the fourth from the end of the list is Charleston, S. C. Williamsport, Pa., has the unique distinction of having had no suicide during 1912, and during the preceding decade the rate was only about 9 per hundred thousand, or less than one half the average for the hundred American cities at large. Exceptionally low rates prevailed for the decade in Elmira and Newburgh, N. Y., Orange, N. J., Savannah, Ga., and Johnstown, Pa. Indeed, their rates are so low that Mr. Hoffman suggests a doubt as to the absolute accuracy of the returns, for there is more or less of a tendency to classify suicides as accidents in the absence of a precise coroner's verdict to the contrary. The cities of the West and middle West have as a rule a much higher suicide-rate than those of the East and South. Springfield, Ill., is seventh on the list, while the first Eastern city is McKeesport, Pa., which with its large foreign population is sixteenth on the list. Chicago is twenty-first with a suicide-rate of 22.2 for the decade, while New York with its very mixed population has the same average as the whole country for the decade, 20.2. Atlantic City, N. J., is in the same class.

---

[1] Hoffman, Frederick: The Spectator, Oct. 2, 1913.

Suicides also occur most frequently at an unexpected time of year. It is not on damp, dark days which would naturally add to the depression of those who already have dark thoughts and consequently lead to suicide, but in the month of June that most suicides are recorded. It has been shown over and over again by the comparison of suicide records of cities with reports of their weather bureaus that suicides were considerably more frequent on bright, sunny days than in dark, cloudy weather. December has the lowest suicide-rate of the year. It is psychic, not physical, depression that tempts to suicide. The moment at which there is a deep feeling of the contrast between their own unhappiness and what they imagine, at least, to be the happiness of others, is the time chosen by the discouraged to end it all and get away from what to them is unbearable.

The highest suicide-rate is not found among the very poor, but among the well-to-do. Very few suicides are absolutely without resources. Even those who have failed in business are often not among the absolutely ruined, but among those who have lost a considerable amount of money, yet retain ample to begin life on a more moderate scale or to enable them to take up their business once more and make a success of it. They are as a rule much better off than when they began their business career. Many of them carry insurance and have kept up payments on it; hence the interest of life-insurance companies in the subject.

Insurance companies would gladly assist in any movement that would bring about a lessening of the loss of life from suicide by which a needless and heavy burden is placed on life-insurance policy-holders through the enforced payment of claims often long before the attainment of normal expectation. Mr. Hoffman points out how much economic and social dependence with serious consequences to the taxpayers of the several states must result from these self-murders, and he suggests that "in an age which concerns itself so generally with the problem of the conservation of natural and human resources it would seem that the time has come for a more intelligent public interest in what is, without question, one of the greatest moral and social problems of the time."

re[illegible] should take more interest in these problems. So
[illegible]**owever,** as every suicide is reported with all its
[illegible] the newspapers, the story acting as a con-
as it [illegible] **to** those who are in depression
the difficu[illegible] **r-line of irrationality,** little
ponents of t[illegible] nt ca[illegible] or. **A large** proportion of
foreign organ[illegible] now a[illegible]. During the past year
ucts of patholo[illegible]lowed the [illegible] te death from mercuric
Nor is the situa[illegible] new mode of [illegible] is thus imitated. The
found biologic ch[illegible] portant factor in [illegible]e movement for the
slight chemical p[illegible] le must come through a better treat-
phylaxis, which see[illegible] on of publicity in these cases.

NUTRITION IN PARIS

Whenever the cost of living increases we are at once brought back to the ever-recurring question as to the ideal ration for man. Communities and even nations, like families, become accustomed or adjusted, as it were, to certain modes of living, in which are included their dietary habits and choice of foods. To speak of nutrition in certain countries without mention of rice would appear quite as extreme as to plan a dietary in the United States without the inclusion of bread of some sort. Such national food habits are doubtless dictated at the start by economic and agricultural considerations. Even within small circumscribed geographic areas the eccentricities of diet customs are exemplified in striking ways. The differences between the range and derivation of the menus of an ultra-fashionable restaurant and the bill-of-fare of the modest "dairy lunch"—the preponderance of high-priced cuts of meat and animal foods with relatively few examples of pastry dishes in the one, and the evident popularity of lactovegetarian meals in the other—make one wonder whether there are, after all, any fundamental dietary laws that can be laid down for people in general. We can scarcely assume that large groups of the population would voluntarily subsist for any length of time on dietaries which were manifestly inadequate for their nutrition. Yet here are the striking contrasts side by side in the routine observation of small and large communities alike.

Physiologists have propounded certain dicta regarding the nutritive needs of man and expressed them both in terms of familiar nutrients and in units of energy, calories. How these have been arrived at need not concern us seriously here. In part it has been by direct feeding experiment to ascertain the limits at which permanent gains or losses to the bodily economy result, and in part by statistical methods whereby the actual food consumption of individuals and groups has been noted and the averages thus gained taken as an index to the probable needs of the human organism. On the whole, the agreement of these two methods, the experimental and the statistical, has been surprisingly close. Recently we discussed some of the limitations to which the free choice of a dietary may be subjected by extraneous circumstances.[1] The collection of suitable statistics throughout the world cannot fail to add useful information as a basis for larger dietary programs, precisely as the study of special groups (laborers, poorer classes, prisoners, etc.), has indicated limitations that need to be recognized by authorities who deal with public problems of nutrition.

The French bear the reputation of being a well-nourished or at least a well-fed nation. This is sustained by the data collected by Gautier,[2] one of the French experts in the field of nutrition study. His figures have an exceptional value and added interest because they represent the findings not of a single day or week, but of no less than two decades. The statistics are those of food consumption on the part of the great majority of the inhabitants of Paris—the "average" inhabitants—derived from public records of taxes paid on foodstuffs and from actual investigation among peasant or "bourgeois" families. In consideration of the long period over which the records apply and the large numbers of people involved—nearly three millions—the discrepancies between rich and poor, undernourished and overfed, are probably in good part equalized. Here are the figures, expressed as a daily average: obtained from vegetable sources: bread, 420 gm.; green vegetables, 250; cereals, 40; potatoes, 100; sugar, 40; fresh fruits, 70; alcoholic beverages, 432; from animal sources: meats, 200 gm.; eggs, 24; cheese, 8; butter and oil, 28; milk, 213; to which may be added salt, 20 gm., and water, 950. When these are translated into terms of the familiar nutrients they furnish a daily total of proteins, 97 gm.; fats, 58 and carbohydrates, 418, with an energy value of over 2,500 calories. This accords well with established "standards" for the average man. Incidentally national characteristics are emphasized in the relative proportions of foods consumed as, for example, the liberal use of bread. Despite such incidental variations, the actual nutrient intake of peoples seems to be much the same the world over.

---

[1] The Nutrition of the Poor, editorial, The Journal A. M. A., Sept. 27, 1913, p. 1046; The Food Factor in Some Sociologic Problems, The Journal, Oct. 18, 1913, p. 1463.

[2] Gautier, A.: Rectification de quelques préjugés sur l'alimentation normale, Bull. Soc. sc. d'hyg. aliment., 1913, iii, 121.

THE RAILWAY TRESPASSER

So much does the spectacular attract the public mind that the killing of a dozen people in a single railway accident calls forth throughout the country newspaper extras, the first page flaring with headlines. Yet, states Mr. Dow,[1] the general safety agent of the New York Central lines, more than that number of persons, fourteen daily on an average, have been killed while trespassing on railway property; and for every one thus killed another has been injured, in general seriously—maimed or crippled for life. Nor are all such persons tramps, negligible derelicts, who would not have been crushed to death under the railroad cars had they been about some worthy business. Only 25 per cent. of railway trespassers are tramps. According to Interstate Commerce Commissioner C. C. McChord,[2] the casualties, taking under consideration a period of twenty years, were suffered by: 25,000 young people (victims of their elders' neglect), all under 18, many under 10—children playing behind or "hitching" on cars or picking coal from the tracks; 36,276 of the sometimes unjustly berated tramps; 120,103 citizens, men and women, mostly wage-earners going to and from work, heads of families, people whose homes were in the vicinity. The total number of railway employees and passengers killed each year is less than the total number of railway trespassers killed.

Apart from their tragic connotation with death and suffering, Dow rightly asserts that such figures illustrate accurately the great economic loss suffered by the country through the negligence of our sanitarians, educators, legislators and humanitarians, who, in their laudable effort to prevent disease, to promote the observance of health laws and the study of eugenics, have side-tracked, so to speak, the issue of railway trespass.

There are two chief remedies advanced by Dow for the evil of the unlawful track-walker—education and legislation. He would have public-school children taught a careful, systematic and definite plan of safety—a plan to be graphically presented, which should be extended to every industrial concern situated near a railway—because such workers furnish by far the most trespassers and victims. As to legislation, there are statutes at present in some states which make trespassing on railway property a misdemeanor and punishable by a fine or a jail sentence; but there is no uniformity in the laws and, indeed, even where such laws exist, it is difficult to obtain the conviction of a trespasser. Many people find humane motives in a railway corporation hard to believe in; certainly, however, the presentment of Mr. Dow, a railway company representative, has this wholesome flavor. His company gains nothing thereby. Such a corporation is not liable when a trespasser is hurt or killed; nor are the tracks injured by any one walking on them. The engineer, also, whose heart is as human as another's, should be considered, for it is his paramount duty to concentrate his attention on his work and to protect from disaster the passengers in his care. One may well sympathize with him whose engine had struck and fatally injured a track-walker: "there were tears in his eyes and his hand trembled as he nervously passed it over his forehead in a gesture of despair and said, 'Such things get my nerve. I wouldn't kill a dog if I could help it; and there is hardly a day when my heart is not in my mouth a dozen times on account of people walking the tracks where I run, barely escaping getting caught by me.' "[3]

Current Comment

MORE FRIEDMANN "CURE" ADVERTISING

In the New York *Sun* for October 26 appeared a brief news item in the form of a cable dispatch from Berlin. It was to the effect that Professor Frederick Kraus, a Berlin internist, had expressed a favorable opinion regarding the use of the Friedmann serum in surgical cases. A few days after this notice appeared, mimeographed copies of the newspaper article were sent broadcast over the country by the Standard Distributing Company, Room 506, 90 West St., New York City. This address, even to the number of the room, is that from which the "Friedmann Institute of New York, Inc.," was doing business a few weeks ago. The cable dispatch and the way in which it is being used but further emphasize the wretchedly commercial spirit that actuates this whole miserable Friedmann business. To the careless reader, and especially to the reader of headlines, the newspaper article gives the impression that the Friedmann "cure" has been proved of value in consumption. As a matter of fact no such statement is made. But relying on the inevitable carelessness of the common reader and the notorious optimism of the consumptive, this report is scattered broadcast as another move in the Friedmann advertising campaign. What though the tuberculous be tortured once more with false hope—what is another turn of the rack—when dollars are at stake?

---

[1] Dow, M. A.: A Nation's Neglect, *The Outlook*, Sept. 27, 1913.

[2] Quoted by Dow: *The Outlook*, Sept. 27, 1913.

[3] Quoted by Dow: *The Outlook*, Sept. 27, 1913.

SOME FEATURES OF STAINING TECHNIC

In some of their most important practical operations the bacteriologist and the histologist have long since adopted technical methods which are largely based on a sort of refined empiricism. Culture mediums are made up according to approved formulae of which the rationale would be difficult to define; and the microscopic worker employs an outfit of selected stains which somehow furnish differential results despite the ignorance which attends their uses and reactions. It is almost needless to say that none of these practices will rest on firm foundations until the principles underlying their application are unearthed, examined and clearly understood. The rapid progress of biochemical research is already leading to a better appreciation of what some of the long-accepted phenomena really mean. An illuminating instance may be cited in the case of micro-organisms. The group of acid-fast bacteria derive this designation from their peculiar behavior to dyes. They can as a rule be stained with aqueous solutions of anilin colors only with great difficulty. As is well known, Robert Koch succeeded in his demonstration of the tubercle bacilli because of the unique tinctorial responses of the latter in tissue sections. Ehrlich found that tubercle bacilli which were stained with anilin dyes dissolved in anilin water were not decolorized by treatment with strong acid. This fact occasioned the introduction of the expression "acid-fast." Ehrlich and others assumed that the resistance to color removal by acids is due to the presence of difficultly permeable capsules or membranes in those organisms which manifest the acid-fast properties. Still other investigators, however, have expressed the conviction that the special tinctorial features of the acid-fast group are attributable not to the impervious nature of the cell-structure but to unique chemical compounds having specific affinities for certain dyes. The dominance of the latter viewpoint is now assured by the studies of Tamura.[1] These show that not only the acid-fast and alkali-fast properties of two typical organisms, *Bacillus tuberculosis* and *Mykobacterium lacticola perrugosum,* but also their positive behavior to the Gram stain, are due to the presence of an alcohol, mykol, in their cells. This substance has a comparatively high molecular weight with an indicated formula $C_{29}H_{56}O$, and is doubtless in part present in the bacterial body as an ester of some higher fatty acid. The chemical features here recited remind one at once of the higher alcohol cholesterol which also plays an important rôle in connection with many types of both animal and plant cells. It is precisely such information as this just published from the laboratories of Profs. A. and H. Kossel at Heidelberg that promises to take the practice of bacteriologic technic out of the domain of laboratory magic and put it on a secure scientific footing.

RED NOT A SATISFACTORY DANGER-SIGNAL

Red has been the sign of danger and a warning signal since the earliest times. Just why it was selected as a danger-warning is a question for the anthropologist and historian to determine. It is unfortunate that this color, which is becoming increasingly important with the growing danger of accidents in civilized life, is the color to which many human eyes are insensitive. Color-blindness is apparently becoming more common. In its most frequent form, it is impossible for the color-blind person to distinguish red from green, yet those two colors, which are the most confusing to the human retina, are the very ones which are in most common use as signals for danger and caution. So common is red and green color-blindness that all licensed pilots, masters of vessels, engineers, firemen, motormen and others employed in directing vessels, trains, trolley-cars and other means of transportation are required to submit to a color-test and to prove that they possess an accurate degree of red-green color perception. The simple expedient of selecting as a sign of danger a color to which practically all human eyes are susceptible has only recently been suggested. *Drugs, Oils and Paints,* in a recent issue, contains an article by Dr. Francis D. Patterson, suggesting a new signal to take the place of the familiar red warning. Patterson calls attention to the fact that the number of industrial accidents is at present enormous and is apparently increasing. As approximately one male in every twenty-five has a deficient color perception and as most of these have an impaired sensibility for red, Dr. Patterson argues that the retention of this color as a danger-signal is simply inviting further increase in accidents. His objection is based on the fact that many persons are color-blind to red and are consequently not only barred from any occupation in which a color perception is necessary, but are also deprived of the protection from accidents and danger supposed to be offered by danger-signals. He also objects to red for practical reasons; it is a fugitive color, difficult to distinguish, fading on exposure to sunlight and requiring frequent repainting. The possibility that red and green color-blindness will increase rather than diminish in the future only serves to emphasize the unfitness of these colors as signs of danger and caution. Experiments with the spectrum and with color-blind persons, as well as with various colors at different distances, leads Patterson to the conclusion that yellow and blue are the best colors for danger signals, as he says that they are the only colors which give rise to a normal color-sensation as soon as they become visible, are the most luminous colors of the spectrum, and are permanent and fast, while color-blind persons react normally to them. It has long since passed into a proverb that it is easier to change the laws of the people than to change their customs. The fact that many persons are unable to distinguish red from other colors should alone be sufficient to cause it to be discarded as a danger signal. Whatever color is adopted should be selected after the most careful physiologic and optical investigation.

---

[1] Tamura, S.: Zur Chemie der Bakterien, I, Ztschr. f. physiol. Chem., 1913, lxxxvii, 85.

PENNYROYAL, TANSY AND OTHER "EMMENAGOGUE" OILS

Because of its inherent interest to many physicians who still assume that a number of oils, including products like pennyroyal, are efficient emmenagogues and abortifacients, we recur to the subject on the occasion of additional evidence now available.[1] Some of these drugs are still official in the United States, the British and other pharmacopeias. Macht has now reported the added details of his study of the effect of these substances on the isolated uterus. The following oils were examined: oleum hedomae (pennyroyal), oleum sabinae (savine), oleum tanaceti (tansy), oleum rutae (rue), oleum thymi (thyme), oleum terebinthinae (turpentine) and apiol. They have no specific or directly stimulating action whatever on the uterine muscle; on the contrary, they inhibit the contractions of the uterus and even paralyze it. It ought to be clear then, once for all, that if these oils exhibit any "emmenagogue" or abortifacient phenomena whatever in the organism it is due to a general constitutional poisoning or gastro-intestinal irritation and not to any specific action in accord with the intent with which they are sometimes administered.

CARELESSNESS AND DIPHTHERIA

The office of the Georgia State Board of Health at Atlanta was recently compelled to close by an epidemic of diphtheria among the officers and employees. Ten persons were affected. Only the secretary and one other physician escaped the disease. The secretary of the board is reported to have said that the disease was contracted from specimens which were so carelessly prepared by the physicians who sent them in that no indication was given of what the packages contained. Ordinary envelopes, it is said, were sent in containing portions of membrane placed between pieces of cardboard or paper; other envelopes contained cotton swabs which fell out when the package was opened. Even if this were not a violation of the postal laws, it is almost inconceivable that physicians could be so careless as to send in this manner material as deadly as dynamite or an infernal machine. It not only constituted a danger to the persons in the office of the health board, as the sequel proved, but it was also a menace to every one handling the mail *en route*. The responsibility of physicians in handling such material is great and the utmost precaution should be observed.

HEALTH TOPICS FOR WOMEN'S CLUBS

The influence of women's clubs on public health questions has been steadily increasing. Now that they have covered the field in a general way, there arises a demand in women's organizations for more accurate knowledge on the important problems of public health. Recognizing that the state board of health exists for the purpose of serving the people of its state in every way possible, the secretary of the Kansas State Board of Health has prepared an outline for the use of women's clubs in studying health questions. This outline, issued in a small leaflet, will prove of immense value in directing the work of the women's clubs desiring to take up this line of activity. Under foods and drugs appears a study of foods, including their preparation and preservation, a discussion of a proper ration and selection of foods, food adulteration, the sanitation of food supplies, drug adulteration and drug addiction. Rural sanitation, school sanitation and hygiene, the cost of preventable disease, the disposal of waste and the conditions for a pure water-supply are some of the topics included in the outline. Reference to bulletins, government publications, journals and books are also included. In directing the attention of women's clubs to these topics and in furnishing them a logical outline of work to be followed, the Kansas State Board of Health is not only doing a great service to the people of its state, but is also building up an educated following which will greatly improve the effectiveness of the work of the board itself.

Medical News

ALABAMA

Personal.—Dr. W. M. Faulk, Tuscaloosa, has been elected treasurer, and Dr. J. L. Williamson has been reelected a member of the Board of Trustees of the Alabama Bryce Hospital, Tuscaloosa.——Dr. C. L. Guice has been elected president of the Gadsden Chamber of Commerce.——Dr. R. F. Elrod, Cottonton, is under treatment in a hospital in Montgomery on account of injuries received in a mowing machine accident.——Dr. D. F. Talley has been made medical director of the Sun Life Insurance Company of America, Birmingham.——Dr. R. D. Jackson, Birmingham, fell in front of his home recently, fracturing his hip.

New Officers.—Jefferson County Surgical and Gynecological Society, at Birmingham, October 25: president, Dr. E. P. Hogan, and secretary, Dr. E. P. Solomon, both of Birmingham.——Russell County Medical Society, at Hurtsboro, October 21: president, Dr. W. B. Hendrick, Hurtsboro; secretary-treasurer, Dr. R. C. Williams, Ratchehubbee; county health officer, Dr. R. B. McCann, Seale.——Marion County Medical Society in Hamilton, October 8: county health officer, Dr. R. L. Hill, Winfield.——Baldwin County Medical Society, at Bay Minette, October 8: president, Dr. C. L. Mershon, Fairhope; vice-president, Dr. W. N. Moore, Daphne.

CALIFORNIA

New Officers.—San Bernardino County Medical Association at Redlands, October 14: president, Dr. B. F. Church, and secretary, Dr. C. G. Hilliard, both of Redlands.

State Board Election.—The initial meeting of the State Board of Medical Examiners was held in Sacramento, October 14. W. W. Vanderburgh, San Francisco, was elected president; Dr. Fred F. Gundrum, Sacramento, vice-president; Dr. Charles B. Pinkham, San Francisco, secretary, and Dr. H. E. Alderson, San Francisco, treasurer.

Personal.—Dr. C. A. Wright, formerly police surgeon of Los Angeles, was seriously injured October 20, when his wheel chair was struck by a street car.——Dr. J. M. G. Carter, Los Angeles, fell recently, fracturing several ribs.——A luncheon was given by the Associated Charities of San Francisco October 30, in honor of Dr. William Palmer Lucas, physician-in-chief of the children's department of the University of California Hospital. Dr. Robert Langley Porter of Stanford University delivered the address of welcome.

Hospital News.—The contract has been awarded for the construction of a four-story and basement, reinforced concrete hospital building at Eighth and Cedar streets, San Diego, to cost $250,000.——A tract of 305 acres near Norwalk has been purchased as a site for the new State Hospital for the Insane, to be erected in Southern California, for which $140,000 was appropriated by the last legislature in addition to the funds necessary for the purchase of the site.——The directors of the Fullerton Hospital have voted to increase the capital stock of the institution from $10,000 to $50,000.

---

[1] Macht, David I.: The Action of So-Called Emmenagogue Oils on the Isolated Uterus, THE JOURNAL A. M. A., July 12, 1913, p. 105; The Action of So-Called Emmenagogue Oils on the Isolated Uterine Strip, Jour. Exper. Pharmacol., 1913, iv, 547.

COLORADO

New Officers.—Eastern Colorado Medical Association at Ray, October 20: president, Dr. E. A. Clarke, Akron, and secretary-treasurer, Dr. E. D. McGill, Wray. The next meeting will be held in Akron.

Personal.—Dr. Eleanor Lawney, Denver, has gone to California for the winter.——Dr. Elsie Seelye Pratt, Denver, has been appointed a member of the Health Service Bureau of the University of Michigan.——Dr. E. W. Emery, Denver, was overcome by gas in his garage, October 1.——Dr. G. P. Lingenfelter, Denver, has been appointed a member of the visiting staff of the Denver County Hospital.

DELAWARE

Hospital News.—At a meeting of the Physicians and Surgeons' Hospital Association, Wilmington, October 22, it was announced that the present hospital site had been purchased from the Helen Bowe estate for $11,000. Dr. J. P. Pyle is president, Dr. Benjamin R. V. Beasey, vice-president; Dr. B. Allen Jenkins, secretary, and Dr. Smith Cooper, treasurer of the association.

State Society Meeting.—The one hundred and twenty-fourth annual meeting of the Delaware State Medical Society was held in Dover. October 14 and 15, under the presidency of Dr. L. A. H. Bishop, Dover. The following officers were elected: president, Dr. William P. Orr, Lewes; vice-presidents, Drs. T. H. Davis, Farnhunt, and William Marshall, Milford; secretary, Dr. G. W. K. Forrest, Wilmington (reelected); treasurer, S. C. Rumford, Wilmington (reelected); councilor, Dr. James H. Wilson, Dover; delegate to the American Medical Association, Dr. H. W. Briggs, Wilmington, and trustee of the state medical journal, Dr. George W. Marshall, Milford. The following names were submitted to the governor from which to select members of the Medical Examining Board: Drs. H. W. Briggs, Wilmington; John Ball, HocKessin; George W. Marshall, Milford; Roland G. Paynter, Georgetown; Robert Ellegwood, Delmar; W. H. Kraemer, Wilmington; P. S. Downs, Dover; E. S. Dwight, Smyrna; James Beebe, Lewes, and Joseph W. Bastian, Wilmington.

ILLINOIS

New Officers.—Knox County Medical Society at Galesburg, October 23: president, Dr. Albert C. Keener, Altona; secretary-treasurer, Dr. George S. Bower, Galesburg.

Addition to Sanitarium.—The new addition to the Prince Sanitarium, Springfield, will be occupied by Drs. Frank P. Norbury and Charles L. Patton. The first floor will be used for offices and the second floor and basement for sanitarium purposes.

State Board Meeting.—At the first meeting of the new Illinois State Board of Health held in Chicago, November 3, it was announced that the policies of the late board as regards prosecution of violators of the medical practice acts of Illinois and the enforcement of the laws of sanitation, will be continued by the new board. Dr. George W. Webster, Chicago, was continued as president of the board.

Personal.—Dr. William A. Young, Springfield, who has been ill for several months, is reported to be convalescent.——Dr. and Mrs. Malcolm C. Roe, Chana, celebrated their fiftieth wedding anniversary, October 21.——Dr. Charles A. Wilcox, Amboy, who underwent operation in a hospital in Dixon recently, has returned home, recovered.——Dr. Oscar B. Ormsby, Murphysboro, has gone to Rochester, Minn., for a surgical operation. ——The home of Dr. Horace H. Sheets, Oregon, was seriously damaged by fire October 25.——Drs. Carl E. Black, Elmer L. Crouch and George H. Stacy have moved their offices to the Ayers Bank Building, Jacksonville.——Dr. Louis B. Jolley of North Chicago fractured his arm while cranking his automobile recently.

Chicago

Roentgen Society Organized.—The Chicago Roentgen Society was organized October 24. Dr. Hollis E. Potter was elected president and Dr. James T. Case, secretary.

Swift's Surgeons to Meet.—The plant surgeons of Swift & Co. will meet in convention in Chicago, November 11 to 13, at the general offices of Swift & Co., Union Stockyards. Papers will be read covering general surgical and medical subjects, one of the most notable of which will be on "The Importance of Detecting Infectious and Contagious Diseases, Particularly Tuberculosis, Among Employees."

Examination Postponed.—The civil-service examination for attending dispensary physicians in the dispensary department of the Chicago Municipal Tuberculosis Sanatorium, originally scheduled for Oct. 28, 1913, has been postponed to Nov. 24, 1913. The examination is open to all physicians residing in Chicago. Particulars may be obtained from the secretary of the Civil Service Commission, Room 610, City Hall, Chicago.

Gynecologists Hold Meeting.—At the annual meeting of the Chicago Gynecological Society, October 17, the address of the evening was delivered by Mr. Leonard A. Busby, president of the Chicago City Railway Co., and the following officers were elected: president, Dr. Frank W. Lynch; vice-president, Dr. Henry F. Lewis; secretary, Dr. Robert T. Gillmore; treasurer, Dr. Charles B. Reed; editor, Dr. W. A. Newman, and pathologist, Dr. Arthur H. Curtis.

Personal.—Dr. Robert Sonnenschein has returned from Europe.——Dr. Otto L. Schmidt has been reappointed a trustee of the Illinois State Historical Library.——Dr. A. Arkin, formerly a member of the staff of the Otho S. A. Sprague Institute for Medical Research, and of the Department of Pathology in the University of Chicago, has been appointed professor of pathology and bacteriology in the Medical School of West Virginia University, Morgantown.

Sanatorium Corner-Stone Laid.—The corner-stone of the Sanatorium for Advanced Cases of Tuberculosis, an institution under the patronage of the Jewish Consumptive Relief Society, was laid October 19. The building, which is under construction at North Fiftieth and Belmont Avenues, will cost $50,000 and is intended as a place of treatment for patients in advanced stages of the disease, who on this account would not be admitted to other tuberculosis sanatoriums. Dr. Theodore B. Sachs will be in charge of the institution.

Public Safety Commission Organized.—The Public Safety Commission of Chicago and Cook County, which was organized recently, has appointed committees containing the following physicians: Industrial Accidents—Dr. A. M. Harvey; Electric Railway Accidents—Dr. Harold N. Moyer; Educational—Drs. W. E. Buehler and A. M. Harvey; Criminal Operations—Drs. E. R. LeCount, chairman; Harold N. Moyer, C. W. Hopkins and W. E. Buehler; Drowning, Homicides, Suicides—Dr. W. E. Buehler, chairman, and Drs. E. R. LeCount, Harold N. Moyer and C. W. Hopkins.

Clinical Congress of Surgeons.—The clinical congress of surgeons of North America will be held in Chicago, November 10 to 15. Dr. E. Wyllys Andrews is chairman of the committee of arrangements. In addition to the clinical demonstrations, whose name is legion, which are to be held in the various hospitals of the city, there will be eight evening sessions at which papers will be read and discussed. The opening meeting will be held November 10, in Orchestra Hall, at which Dr. Edward Martin, Philadelphia, the retiring president, will deliver an address. The president, Dr. George E. Brewer, New York City, will be inaugurated, and will deliver the presidential address, and Drs. Harvey Cushing, Boston, and John B. Murphy, Chicago, will read papers. On November 11, in Orchestra Hall, Sir W. Arbuthnot Lane, London; Mr. Herbert J. Paterson, F.R.C.S., London; Dr. Carl Beck, Chicago; Dr. John B. Deaver, Philadelphia, and Dr. A. J. Ochsner, Chicago, will present papers. The meeting November 12 will be held in the Gold Room of the Congress Hotel. At this time Prot. Dr. Kroenig of Freiburg, Germany; Dr. Howard Kelly, Baltimore; Dr. C. J. Gauss, Freiburg, Germany; Dr. Roswell Park, Buffalo; Dr. Dean D. Lewis, Chicago; Dr. John F. Binnie, Kansas City, and Dr. Jasper Halpenny, Winnipeg, Man., will speak. The evening of November 13 will be devoted to the consideration of cancer. The meeting will be held in Orchestra Hall. Dr. Thomas S. Cullen, Baltimore, will present the report of the Cancer Campaign Committee of the Clinical Congress of Surgeons of North America, and Mr. Samuel Hopkins Adams, New York City; Dr. Edward Reynolds, Boston; Dr. Frederick R. Green, Chicago; Mr. Frederick L. Hoffmann, Newark, N. J.; Dr. James Ewing, New York City; Dr. C. J. Gauss, Freiburg, Germany, and Dr. Joseph C. Bloodgood, Baltimore, will present papers and reports dealing with various phases of the subject. On November 14, in the Gold Room of the Congress Hotel, Dr. Hugh Cabot, Boston; Dr. Arthur Dean Bevan, Chicago; Dr. John M. T. Finney, Baltimore; Dr. E. Wyllys Andrews, Chicago; Dr. Charles H. Mayo, Rochester, Minn., and Dr. George W. Crile, Cleveland, will take part in the program.

In the division of surgical specialties, evening sessions will be held on November 11, 12 and 14 in the Louis XVI Room of the Hotel Sherman. On the first evening Dr. Edward Jackson, Denver; Drs. C. H. Beard, George H. Fiske, Chicago; Dr. Harold Gifford, Omaha; Drs. E. V. L. Brown and J. Brown Loring, Chicago; and Lieut. Col. Robert H. Elliott, I.M.S., superintendent of the Government Ophthalmic Hospital, Madras, India, will make addresses. On the second evening Dr. G. Hudson-Makuen, Philadelphia; Drs. W. E. Casselberry and Elmer L. Kenyon, Chicago; Dr. Viray P. Blair, St. Louis; Drs. Arthur D. Black and Herbert A. Potts, Chicago, will read papers. On the third evening Dr. Frederick Whiting, New York City; Drs. Frank Allport and Joseph Beck, Chicago; Dr. Philip D. Kerrison, New York City; Drs. George E. Shambaugh and J. Gordon Wilson, Chicago, will speak.

November 13, at 6 p. m., the Alumni of Rush Medical College will hold a dinner at the Hotel Sherman, which will be Rush Alumni headquarters during the congress. At the same time the Alumni of the College of Medicine of the University of Illinois will hold a banquet at the University Club, 76 E. Monroe Street. The headquarters of this organization will be the Illinois Club, 314 South Federal Street.

NEW YORK

Physician Wins Suit.—In the suit of Percy Palmateer, Spencerport, against Dr. Lewis E. Slayton, in which $30,000 damages was claimed on account of the death of the wife of the plaintiff from alleged mercurial poisoning, the jury decided in favor of Dr. Slayton.

Cancer Institute Opens.—The Hospital of the State Institute for the Study of Malignant Diseases, Buffalo, was formally opened November 1. Dr. Roswell Park, Buffalo, and Hon. Charles Fairchild, formerly Secretary of the Treasury, spoke for the trustees of the institute, and Dr. James Ewing, professor of pathology in Cornell University, delivered an address on "The Cancer Research Hospital."

Personal.—Dr. Frank W. Spaulding, Clifton Springs, is spending the winter on the Pacific Coast.——Dr. Joseph Moore of the staff of the Manhattan State Hospital has been appointed first assistant physician at the Matteawan State Hospital. Dr. Daniel W. Nead, medical examiner for the Pennsylvania System at Buffalo, has been transferred to be medical examiner at Reading, Pa., and Dr. John H. Brewster has been appointed medical examiner at Buffalo.

New Officers.—Medical Association of Central New York at Auburn, October 30: president, Dr. George M. Price, and secretary, Dr. John J. Buettner, both of Syracuse. Mr. Samuel Hopkins Adams addressed the association on "Quackery and the Public Press."——Physicians' Club of Batavia, October 23: president, Dr. Emerson E. Snow, and secretary-treasurer, Dr. Victor M. Rice.——Madison County Medical Society at Oneida, October 14: president, Dr. William T. Tanner; secretary, Dr. George W. Miles, both of Oneida.——Ulster County Medical Society at Kingston, October 7: president, Dr. Frank Keator; secretary, Dr. John R. Gillette, both of Kingston.——First District Branch of the New York State Medical Society at Yonkers, October 9: president, Dr. Henry Lyle Winter, Cornwall; secretary, Dr. Charles E. Denison, New York City.——Broome County Medical Society at Binghamton, October 7: president, Dr. S. Halsey Stevens, Union; secretary, Dr. H. De Witt Watson, Binghamton.

New York City

Celebrate Centennial.—The Riverside Practitioners Society held its one hundredth regular meeting and centennial dinner at the Hotel Manhattan, October 28.

New Instructors.—Drs. E. David Friedman, John H. Wyckoff and Mills C. Sturtevant have been appointed instructors in medicine in the University of Bellevue Hospital Medical College.

Dispensary Corner-Stone Laid.—The corner-stone of the new dispensary of the Hospital for Deformities and Joint Diseases on Madison Avenue and East One Hundred and Twenty-Third Street was laid with proper ceremony, November 4.

Lowest City Death-Rate.—The death-rate for this city for the week ending October 18, was the lowest ever recorded in the history of the health department. It was 11.20 per 1,000 population. The number of deaths for the week was 1,153, as against 1,243 for the corresponding week of 1912. One of the noticeable features of the report was the drop in infant mortality.

Seaside Hospital Inspected.—The Woman's Auxiliary of St. John's Guild made the arrangements for an inspection tour of the Seaside Hospital for Infants and Children at New Dorp, Staten Island, on October 29. As the pressure on the city hospitals is so great, the Seaside Hospital is to be kept open as a convalescent hospital during the winter season. The new wards provide for heart cases, orthopedic cases, maternity cases and general convalescents. One of the interesting features of the hospital organization is that it is conducted in neighborhood groups as far as possible.

Society to Celebrate Fortieth Anniversary.—The New York Laryngological Society will celebrate the fortieth anniversary of its organization this month. This society was the first of its kind to be established, antedating all societies in Great Britain or the continent by more than ten years. In 1898 the society was merged with the New York Academy of Medicine, becoming the Section of Laryngology and Rhinology. The formal meeting has been arranged to be held at the Academy of Medicine, at which addresses will be given and a bronze tablet and other memorials commemorative of the occasion will be presented.

OHIO

Public Health Service.—The state and municipal boards of health, together with the Anti-Tuberculosis League, will soon cooperate with the public health service in an investigation of tuberculosis in this city, which will include the relation of the disease to the various industries.

University of Cincinnati, Medical Department.—Not a little importance is attached to the appointment of Dr. Frank B. Cross, Tuesday, November 4, as vice-dean and secretary of the medical department. Dr Cross has acted as secretary of the Medical Civics Association since its origin, is a well-known ophthalmologist, and has done some very effectual organization work in medical circles in Cincinnati.

Personal.—The Cincinnati Academy of Medicine has elected Dr. Albert Freiberg, chairman of the Committee of Arrangements for the Mississippi Valley Medical Association, which will meet in Cincinnati next October.——Dr. Adolph Schmidt, Halle, Germany, addressed the Academy of Medicine, November 3, on "Diarrhea and Constipation." Dr. Schmidt has opened up new fields for the study of intestinal diseases by means of his original investigation, and has enriched medical literature with several very useful and comprehensive contributions. His address was clear, concise and full of interest to all present.

PENNSYLVANIA

Insane Asylum Dedicated.—The new state institution for the insane, located near Pottsville, was dedicated October 30. The new institution, when completed, will have cost approximately $600,000, and will accommodate 600 patients.

New Officers.—Central Pennsylvania Branch of the Jefferson Alumni Association at Altoona, October 16: president, Dr. Henry H. Brotherlin, Hollidaysburg; secretary, Dr. Charles F. McBurney, Altoona.——Somerset County Medical Society at Rockwood, October 21: president, Dr. George C. Berkheimer, Windber; secretary, Dr. Henry C. McKinley, Meyersdale.

Hospital News.—In a whirlwind campaign, $100,000 was raised for the General Hospital of Braddock.——The congregation of the Sacred Heart of Jesus, Allentown, has purchased the home of the late Judge Edward Harvey, and will establish a hospital to be conducted by the sisters of St. Francis.——The new tuberculosis hospital at the county poor farm near Connellsville was opened October 16.

Personal.—Dr. John L. Bower, medical examiner for the Pennsylvania System at Reading, has been transferred to be medical examiner at Broad Street Station, Philadelphia, vice Dr. E. C. Town, deceased.——Dr. Samuel G. Dixon, state health commissioner Harrisburg, who was operated on recently at the University Hospital, Philadelphia, is convalescent and has gone to Atlantic City.——Dr. Ivor D. Fenton has resigned as a member of the staff of the State Hospital, Fountain Springs, and will practice in Mahoney City.——Officers and employees of the department of health and charities, Pittsburgh, gave their former director, Dr. E. R. Walters, a complimentary banquet, at which he was presented with a 31-foot rowing shell.

Philadelphia

Personal.—Drs. Joseph M. Rosenthal and Wilfrid B. Fetterman were injured in a collision between the motor-car in which they were riding and a trolley-car, October 25.——Dr. James T. Rugh has been appointed consulting orthopedic surgeon at the Philadelphia General Hospital, vice Dr. H. Augustus Wilson, resigned.

Physicians as a Social Force.—At a reception given by the Medical Club of Philadelphia to President Hibben of Princeton University, October 17, he appealed to physicians to cooperate and help the social forces at work to-day to make saner men and minds through the elimination of degenerate social conditions.

Philadelphia Joint Lecture Course.—The Rush Society for the Correlation and Support of Medical and Biological Lectures in Philadelphia has entered into an agreement with the committees controlling the Mütter Lecture and the Weir Mitchell Lectures at the College of Physicians of Philadelphia, the lectures of the Philadelphia Pathological Society and the two lectures supported by undergraduate organizations at the University of Pennsylvania. In another year it is hoped that as a result of present efforts, this list of cooperative committees may be further extended to include the lecture of the John Morgan Society and the Gross Lecture of the Jefferson Medical College. The Samuel D. Gross Lecture, before the Philadelphia Pathological Society, October 23, opened the course. The next one will be the fifth Rush Society Lecture, on November 18, at 8:30 p. m., by Frederick L. Hoffman, of the Prudential Insurance Company of America, on "The Incidence of Cancer by Organs and Parts of the Body Affected," at the College of Physicians Building, Twenty-Second Street above Chestnut. The medical public is invited to attend.

TEXAS

Medical Buildings.—At the meeting of the Harris County Medical Society in Houston, October 3, the question of a medical office building for Houston was discussed.

New Public Health Association.—The Texas Antituberculosis Association, at its meeting in Austin, October 16, made arrangements to pay the debt on the Walter Colquitt Memorial Hospital for Tubercular Children, Galveston; pledged cooperation with the State Health Department and decided to change the name of the association to the Texas Public Health Association.

Hospital News.—The Physicians and Surgeons' Hospital has been organized at El Campo.——The Sherman Hospital has received its charter. At a meeting of the stockholders, October 10, Drs. E. J. Neathery and O. C. Ahlers were elected directors, and at a meeting of the directors Dr. Neathery was elected president and Dr. Ahlers secretary-treasurer. It was announced that the new building, which is being erected at a cost of $50,000, will be completed by December 15.

Medical Society Notes.—Dr. W. N. Wardlow, Corpus Christi, councilor of the Sixth Medical District, visited Kingsville October 9, and organized the Kleberg County Medical Society as a component society of the State Medical Association.——Dr. Orville Egbert, Beeville, has been elected secretary of the Bee County Medical Society, vice Dr. W. E. Sturgis, San Angelo, who has removed from the county.——The retiring chairman of the Fort Worth Physicians' Luncheon Club has named Dr. W. C. Lackey as chairman, Dr. Crittenden Joyes, vice-chairman, and Dr. Pierre Higgins secretary-treasurer.

Personal.—Dr. and Mrs. J. W. Harvey, Sunset, were injured by the overturning of their automobile, October 4.——Dr. H. G. Heanye, Corpus Christi, recently underwent an operation for appendicitis in Galveston, and is reported to be doing well.——Dr. Edward S. Ruth has been appointed instructor in anatomy and Dr. C. F. McClintic instructor in physiology in the medical school of the Southern Methodist University, Dallas.——Dr. Henry C. Hartman, formerly assistant state health officer, has been appointed professor of pathology in the State Medical College, Galveston, vice Dr. J. J. Terrill.——Dr. T. M. Sherman has been elected vice-president of the Farmers' Guaranty Bank, Kennard.

New Officers.—Eighth District Medical Association, at Wharton, October [illegible]: president, Dr. S. A. Foote, and secretary, Dr. P. E. Parker, both of Bay City. It was decided to hold the next meeting in conjunction with the Ninth District Medical Association at Houston.——Leon County Medical Society, at Marquez, October 14: president, Dr. S. R. Burroughs, Buffalo; secretary-treasurer, Dr. V. L. Smith, Jewett. The next meeting will be held in Buffalo.——South Texas Medical Association, thirty-fourth semi-annual meeting at Beaumont, October 10: president, Dr. E. F. Cooke, Houston, and secretary-treasurer, Dr. W. F. Thompson, Beaumont. The next meeting will be held in Port Arthur.

GENERAL

Tuberculosis Day.—Churches, schools, labor unions, fraternal orders and other organizations have been asked to join the antituberculosis workers of the country in the observance of the fourth annual national tuberculosis day, which has been set for November 7.

New Union District Officers.—At the annual meeting of the Union District Medical Association, held in Oxford, Ohio, October 25, the following officers were elected: president, Dr. D. W. Stevenson, Richmond, Ind., and secretary, Dr. William A. Thompson, Liberty, Ind.

Students of Criminology Organize.—At the meeting of medical, sociologic and psychologic scientists, held in Indianapolis, October 13, noted in The Journal of October 25, page 1547, the organization adopted the name of the American Association of Clinical Criminology.

Railway Surgeons Meet.—The Atlantic Coast Line Surgeons' Association held its seventh annual meeting in Montgomery, Ala., October 14 and 15, and elected the following officers: president, Dr. J. N. Baker, Montgomery, Ala.; vice-presidents, Drs. A. M. Brailsford, Mullins, S. C., and P. P. Lane, Waycross, Ga.; and secretary-treasurer, Dr. C. P. Aimar, Charleston, S. C. (reelected).

Anti-Disease Society Organized.—The New England Society for the Prevention and Treatment of Diseases was organized recently with an initial membership of twenty-five, and the following officers were elected: president, Dr. Andrew F. Christian, Boston; vice-president, Dr. Melville Jackson, Portland, Me.; secretary, J. J. Higgins, Boston, and treasurer, George L. Lupe, Boston. A series of twelve lectures, offered to the public, is being given on Sunday evenings at the hospital of Dr. Christian, Marlboro Street, Boston. The first lecture was given November 2.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Pennsylvania, Philadelphia, $50,000, by the will of Miss Anna Blanchard.

University of Pennsylvania, $15,000, to endow three beds in the children's orthopedic ward; Philadelphia Home for Incurables, $5,000, by the will of Mrs. R. L. Bringhurst.

For a new hospital to be erected at Albania, $10,113, in payments and subscriptions.

Hospital in China Needs Woman Physician.—The Board of Foreign Missions of the Presbyterian Church announces that a woman physician is needed for the Presbyterian Hospital and dispensary at Tsinanfu, Shantung Province, North China, 300 miles south of Peking. The hospital was opened in 1899, but has been closed periodically for the last three years owing to ill-health of the physician in charge, and a woman with thorough medical training, considerable experience and practice, a sound constitution and good health, good sense and tact, is urgently required. Support is said to be adequate, including salary, traveling expenses, living quarters, etc., and is provided by the mission board. Correspondence regarding this matter should be addressed to Wilbert B. Smith, 600 Lexington Avenue, New York City.

Award of Hodgkins Prize.—On the recommendation of the Committee on the Award of the Hodgkins Prize of $1,500 for the best treatise "On the Relation of Atmospheric Air to Tuberculosis," which was offered by the Smithsonian Institution in connection with the International Congress on Tuberculosis held in Washington in 1908, the institution announces that the prize has been equally divided between Dr. Guy Hinsdale of Hot Springs, Va., for his paper on "Tuberculosis in Relation to Atmospheric Air," and Dr. S. Adolphus Knopf of New York City, for his treatise "On the Relation of Atmospheric Air to Tuberculosis." The members of the Committee on Award were: Dr. William H. Welch, Johns Hopkins University, Baltimore, Maryland, chairman; Dr. Hermann M. Biggs, New York City; Prof. W. M. Davis, Cambridge, Mass.; Dr. G. Dock, Washington University Medical School, St. Louis, Mo.; Dr. Simon Flexner, Rockefeller Institute for Medical Research, New York City; Dr. John S. Fulton, Baltimore, Md., and Brig. Gen. George M. Sternberg, U. S. Army (retired), Washington, D. C.

CANADA

Infant Mortality in Ontario.—One out of every ten children born in Ontario dies before reaching 5 years of age. In 1912, 8,230 children under the age of 5 years died, of which 6,494 were under 1 year, a rate of 110.3 per 1,000 births. There were 200 less deaths from diarrheal diseases than in 1912.

The Fight against Tuberculosis in Ontario.—The death-rate from tuberculosis in Ontario continues to decrease. Although the reduction was less in 1912 than in several previous years, it is looked on with satisfaction. The deaths from tuberculosis in 1912 numbered 2,250, an actual decrease of 103. At the present time about 7 per cent. of the deaths in Ontario are due to tuberculosis. More die between 20 and 30 than in any other period.

Declining Birth-Rate in Ontario.—In the report of the registrar-general for Ontario, the birth-rate is shown as 22.4 per 1,000 for the past fiscal year, the lowest since 1903 and two points below that of 1912. This is in the face of the fact that the marriages show an increase of 3,038 in the year. The responsibility rests with the cities and towns. The cities had a record of 22,929 marriages, but were only able to report 15,917 births. The rural municipalities reported 10,910 marriages and 32,028 births.

President Godlee in Toronto.—Sir Rickman John Godlee, president of the Royal College of Surgeons, England, had the honorary degree of doctor of laws conferred on him at a special convocation of the University of Toronto, November 5. In the evening Sir Rickman was a guest at the regular monthly dinner of the Æsculapian Club, at which the Hon. W. J. Hanna gave an address on prison reform. At the Academy of Medicine on the evening of the 4th, Sir Rickman delivered an address on foreign bodies in the air passages. At the same meeting C. Franklin Hoover, M.D., Cleveland, read a paper on the clinical study of respiration.

Conference on Pollution of Navigable Waters.—Called at the instance of the Hon. J. D. Hazen, minister of Marine and Fisheries, a conference was held at Ottawa October 29, to determine on cooperative legislation enactments in the various provinces of Canada toward preventing the pollution of all navigable water-supplies. As contingent to this end, the conference passed a strong resolution calling for the immediate establishment of a federal department of public health. This resolution was proposed by Dr. E. P. Lachapelle, Montreal, chairman of the Quebec Board of Health, and seconded by Dr. M. M. Seymour, Regina, commissioner of public health for Saskatchewan, and president of the Canadian Public Health Association. Speaking to this resolution, the Hon. Martin Burrell could not give any definite announcement as regards a proposed federal department in the immediate future, as, although the matter had been discussed several times by the government, there were certain difficulties to be cleared up before the government could act in the matter. The jurisdiction between the provinces and the Dominicn had to be worked out before legislation could be passed. Dr. Charles A. Hodgetts, Ottawa, medical adviser to the Conservation Commission, advocated a federal act given into the hands of a central body to apply in conjunction with the provincial bodies.

LONDON LETTER

(From Our Regular Correspondent)

London, Oct. 25, 1913.

Noguchi's Demonstration in London

At a special meeting of the Royal Society of Medicine, Dr. Hideyo Noguchi gave a demonstration on "The Application of Cultural Methods to the Study of Infectious Diseases of Unknown Etiology." Noguchi's announcement of his discovery of the *Spirochaeta pallida* in the brain of subjects with general paralysis was listened to with great interest. Some beautiful microscopic specimens and lantern-slides were exhibited showing the organism in the brain tissue. He had transmitted it from the brain of a general paralytic to a rabbit, and had also produced in the rabbit by intracerebral or subdural inoculation, lesions resembling general paralysis. Lantern-slides were shown indicating that the spirochetes multiplied by longitudinal fission. Noguchi also drew attention to his lutein reaction for syphilis, which he considered superior to the Wassermann. He had cultivated three groups of spirochetes, of which the first two invaded the tissues and the blood, respectively, while the third was non-pathogenic and lived on the surface of mucous membranes or moist lesions. For the cultivation of the first two groups a piece of fresh sterile animal tissue was necessary in the culture medium. For the tissue spirochetes absolute anaerobiosis was necessary, which could be secured by an apparatus which he had constructed. But anaerobiosis was detrimental to the blood spirochetes, as a small amount of oxygen was necessary. Noguchi also showed cultures of the virus of poliomyelitis and rabies. He described the granules which he had found in pure cultures of the virus of rabies and believed to be the causal agent.

The Care of the Feeble-Minded

At the ninth quinquennial festival of the Royal Albert Institution, which is responsible for the care of the feeble-minded of the seven northern counties, Sir James Crichton-Browne gave an address on the future care of the feeble-minded. The etiology of mental deficiency was still obscure. At present the belief in its hereditary nature was uppermost and hopes were entertained that by segregation it might be reduced and even extinguished. But there could be no doubt that feeble-mindedness was a recessive character and might skip a generation. They could not shut up a man because his father or grandfather was weak-minded. There were also other causes besides heredity. It would almost seem as if the highest intellectual development in parents might sometimes result in mental deficiency in offspring. It was unquestionably desirable that a certain type of imbecile men and women should be segregated, the men for life and the women until 50 years of age; but it was erroneous to suppose that they would for a long time to come make any serious impression on the number of the feeble-minded in the community or on the mental caliber of the people at large. Along with heredity they must have regard to other causes of mental defect. The prevention of a large amount of it might be secured by improved sanitation in its widest sense, by skilled midwifery, by the hygienic rearing of infants and children, by the abolition or diminution of those zymotic diseases, scarlet fever, measles, etc., which left so many children blemished for life, by the timely treatment of defects of the senses and of various bodily illnesses, especially those of a tuberculous nature, by expert and discriminating teaching in schools of all classes, and the avoidance of that artificial production of stupidity which now sometimes went on, and by increased temperance and morality generally.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Oct. 24, 1913.

Deaths of Distinguished Men

Surgery in France has suffered a great loss in the death of Dr. Lucas-Championnière, which occurred October 22. He had been a member of the Académie des sciences for several months, and was present to read a paper on prehistoric trephination, which was on the program of the next meeting of the Institut de France, when he sank into his chair, overcome, probably by an embolism.

Born Aug. 15, 1843, at Saint-Léonard, Oise, Just Lucas-Championnière was intern in 1865, received his medical degree in 1870, and was appointed surgeon in 1874. He was chief of service at the hospitals of Cochin, Tenon, Saint-Louis and Beaujon, successively, and ended his hospital career as surgeon at the Hôtel-Dieu in 1906.

His chief interest had become focused on the method of antisepsis in 1868, when he was still an intern. In Scotland he met Lister, and became enthusiastic over a method which at that time was opposed or regarded with indifference. It was the glory of Lucas-Championnière to introduce antisepsis into France; he explained it and defended it against critics. He adhered to its principle in face of the progress in asepsis under Terrier and his successors. Antisepsis permitted Lucas-Championnière to undertake fearlessly a bolder surgery than that which had previously been practiced, and among his contributions to surgical progress were a perfecting of trephination, arthrotomy and the radical treatment of hernia. He also introduced the treatment of fractures by massage and early mobilization.

He was an active member of all the societies to which he belonged, and took a lively interest in free instruction. With other physicians and surgeons he founded in 1907 the Association d'enseignement médical des hôpitaux de Paris, and he gave clinical instruction to students. No one was worthier than he to occupy a chair at the Faculté de médicine, but though this distinction was denied him, his merit was none the less widely recognized. He had been a member of the Académie de médecine since 1894, and in 1912 was elected a member of the Académie des sciences, succeeding Lannelongue. He was editor of the *Journal de médecine et de chirurgie pratiques* and a member of the Association de la presse médicale francaise, and presided, at London, August 5, over the last meeting of the International Association of the Medical Press.

Dr. Ledouble, formerly professor of anatomy at the Ecole préparatoire de médecine de Tours, is dead from asphyxia by gas at the age of 65. Born in 1848 at Rocroy, Ardennes, he was intern at Paris in 1873, surgeon at Tours in 1878, and took the chair of anatomy at the medical school in that town in 1888. He became a corresponding member of the Académie de médecine de Paris in 1898, and an associate member in 1907. Ledouble published some remarkable anatomic studies on the variations of the muscular and osseous systems, works on prehistoric medicine and surgery, on hairiness in man, and on Rabelais and Bossuet.

Dr. Louis-Frédéric Wickham, formerly chief of clinic of diseases of the skin at the Faculté de médecine de Paris, and physician of the Maison de Saint-Lazare, is dead at the age of 53. He was a pioneer in the use of radium therapeutically, especially in the treatment of cancer.

First Congress of French-Speaking Pediatricians

In accordance with the decision made last year the annual session of the Association française de pédiatrie has been changed to the Congrès des pédiatres de langue française in order to permit foreign French-speaking physicians to take part in it. The congress was held in Paris, October 3 and 4, under the presidency of *Agrégé* Professor Netter of Paris.

OBESITY IN CHILDHOOD

Dr. Le Gendre, physician of the hospitals of Paris, believes that the obesity of childhood is almost always caused by arthritism and neuro-arthritism. The greater majority of obese children belong to families in which several generations have over-eaten and are the victims of weakened digestive powers. The prognosis of obesity in children is less grave than among adults affected to the same degree, as far as the immediate outcome is concerned. The serious feature is that the moderately obese child runs a great chance of becoming a very obese adult. The general indications of treatment are theoretically the same in children as in adults. The particular difficulties in the case of the child arise in the graver difficulty in appealing to the will. Exercise should play the greatest part in the treatment. The hour that follows the meal should be devoted not to exercise but to complete rest. The duration of exercise should be calculated and the amount should be divided throughout the day. Bicycling is useful and may begin at 6 or 7 years, if not carried to excess. Skipping the rope, running with the knees bent and the chest up, and hoop-rolling are exercises good for pulmonary ventilation. No new methods of diet have been developed recently, but there is a reaction against too monotonous diets. As for physical agents, except hydrotherapy and massage, which necessarily play a part in every complete cure, the electrotherapeutic method of Professor Bergonié offers an advantage in certain cases in which active exercise is difficult. (The Journal, Oct. 9, 1909, p. 1201.)

Dr. Marcel Nathan of Paris read a paper on glandular obesity, studying successive thyroid and genital obesity, hypophyseal obesity, pineal gland obesity and adrenal obesity.

Dr. G. Mouriquand, *agrégé* at the Faculté de médecine de Lyon, read a paper on the study of the syndrome described by Fröhlich in 1901 and characterized by a tumor (adenoma, carcinoma, etc.) of the hypophysis, accompanied by a monstrous general obesity and atrophy or delayed development of the genital organs. Patients affected by this syndrome have a high tolerance to carbohydrates. Often they are children of diabetic and glycosuric parents, and their syndrome thus contrasts with that of their parents. Theoretically, it would seem that the syndrome, which is due to hypopituitarism, ought to be benefited by the use of extracts of hypophysis. The drawback to preparations of this gland is that the activity varies greatly in accordance with the variable content of the gland, in active principles and the methods employed for extraction. Practically the physician will do well to use powders which have been altered by neither heat nor chemicals. The child tolerates well the dried and pulverized gland. Mouriquand has given as much as 0.3 gm. to little girls of 10 years and 0.2 gm. to a child of 2 years without bad results. The best practice seems to be to associate thyroid medication with the use of the hypophysis, or to alternate the two. Genital opotherapy may help out in case of failure. There have been some successes with radiotherapy.

Dr. Apert, physician of the hospitals of Paris, while recognizing that dietary restriction is useful, emphasizes the fact that it is not nearly so well borne by obese as by normal subjects, and this not only subjectively but objectively (lipothymia, weakness, etc.). He considers it an error to calculate the ratio of an obese patient on the scale of that of normal men. It is necessary to restrict diet progressively and without excess.

Dr. Guinon, physician of the Bretonneau Hospital, emphasizes the rôle of race and heredity in the etiology of obesity. The obese are abnormal not only in respect to their excessive fat, but because they are almost always unstable, emotional and restless. They often have osseous dystrophies (genu valgum, flatfoot, scoliosis). Guinon has employed thyroid and hypophysis treatment, but at present he dispenses with them and obtains about the same results.

Dr. Léopold-Lévi of Paris observed that the thyroid gland in therapeutic doses (0.2 gm. of dry powder, for example) has little effect on obesity. It increases the appetite and may thus fatten thin persons. Hypophysis treatment sometimes gives results, but it is on diet and physical exercise that one must rely.

According to Dr. Hallé, physician of the hospitals of Paris, there are cases of obesity in childhood in which the diet must not be too much restricted and in which there is danger in thyroid treatment. These are in lymphatic patients affected with adenitis and osseous lesions.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Oct. 17, 1913.

Personal

October 16, the noted gynecologist of Marburg, Professor Ahlfeld, celebrated his seventieth birthday.

Privat-dozent Dr. Lange of Greifswald has been selected as successor of Professor Bürkner in the directorship of the polyclinic for ear diseases in Göttingen.

Professor Gaffky has received the distinction of the title Wirkl. Geheimer Obermedizinalrat on his retirement from the Institute for Infectious Diseases, and has been appointed an honorary member of the Institute.

Restriction of Foreigners in German Universities

As a result of the overcrowding by foreign students, especially Russian, the Prussian Department of Education has determined that from now on a maximum figure shall be established which the students of any foreign nation shall not exceed. The Baden Department of Instruction has, in view of a threatened overfilling of the auditorium and laboratories, prescribed as the privilege of the native students that foreigners shall not be admitted to registration for lectures, and for the assignment for places for the winter semester previous to November 5, and for the summer semester May 5, and then only to the extent that places are available at these assigned dates.

Annual Meeting of the German Society of Urology

Two topics were presented by the executive committee for discussion, in addition to the numerous addresses made to the fourth annual congress which was held in the latter part of September.

SEROLOGY AND VACCINE THERAPY IN UROLOGY

This subject was introduced by Professor v. Wassermann. He noted the peculiar position of the uropoietic system in its biologic relation. In his view the tolerance of the tissues for infection is very closely connected with a local immunity. Moreover, he showed that there is in a therapeutic sense an extremely important distinction to be made between two different infectious conditions which bacteria may excite in the urinary apparatus, according as the infection is superficial or has penetrated deeply into the tissues. He showed from the success and failure of treatment of the coli and gonococcus infections of the urinary tract that only the deep infections furnish a satisfactory field for vaccine therapy.

George Michaelis, a coworker with Wassermann, presented the serologic principles of vaccine therapy as they were founded on Wright's discovery of opsonins and that of tropins by Denys and Neufeld. Finally he gave a short summary of bacterial infections of the urinary tract in which he made plain the necessity of the preparation of autogenous vaccines.

Volk of Vienna said that the favorable results reported by American observers from the employment of gonococcus serum needed confirmation. The vaccine treatment, which, with exact dosage and careful observation, is not injurious in any case, is suited not only to the treatment of various gonococcic complications, *but also to the various infectious diseases of* the urinary organs, particularly as a remedy auxiliary to the methods previously used. Acute gonorrheal urethritis is not influenced. The determination of the opsonic index is superfluous so far as treatment is concerned. More attention must be paid in the future to diagnostic vaccinations, and especially the combination of vaccine therapy with other methods and particularly with chemotherapy, must receive further development.

C. Schneider of Brückenau-Wiesbaden said that the entirely safe vaccination treatment of infectious processes of the urinary system means a marked advance over the previous methods of treating these diseases, and should be applied in all acute and chronic cases. Vaccine treatment should, if possible, be combined with local treatment, which is necessitated by the pathologic changes induced by the infection.

Asch of Strassburg stated that antigonococcus serum had failed in the treatment of gonorrhea, and that antimeningococcus serum was more satisfactory in gonorrheal arthritis with serous effusion. Vaccine treatment is successful in gonorrheal arthritis with a few exceptions. In funiculitis, periurethral infiltrates and acute septic gonorrheal processes, it often exercises a good influence, but not in prostatitis. In place of subcutaneous injections, which readily cause inflammation, Asch recommends the intramuscular injection of vaccines. The rise of temperature which follows such injections is of no value for diagnosis, as even healthy people may react with high fever. Gonococci are found in the urethral secretion after the injection when they were not previously demonstrable. For the diagnosis of late gonorrhea urethroscopy before and after the injection is recommended. From one to three days after such injections, striking lesions are to be found in the urinary tract which formerly appeared healthy. By this method gonococcus carriers can be converted into gonorrheics.

VIENNA LETTER

(From Our Regular Correspondent)

Vienna, Oct. 15, 1913.

The International Congress on First Aid

In September, Vienna was the congress city of Europe for, apart from several less important conventions and meetings, two large gatherings of a scientific nature took place here — the convention of the German Natural Scientists and Practitioners (Deutscher Naturforscher und Aerztetag) and the Congress on First Aid and Ambulance (Congress für erste Hilfe und Rettungswesen). The latter being of more importance for the profession, it will be reported first. In order to systematize the proceedings, ten sections were formed, on first aid in accidents, first aid in towns and in the country, instruction of non-medical men in first aid, first aid in fire, in the mining and allied industries, in traveling, on the seashore and in navigation, and first aid in sport, in mountaineering, and in prevention of accident. More than two hundred papers were read, and over twelve hundred members were present.

Dr. Kuhn of Berlin read a paper on "Resuscitation of Persons Apparently Dead from Asphyxia." He postulates that artificial respiration and stimulation of the heart should be applied more frequently than it has been the custom hitherto. Experimental researches have shown that it is possible to obtain successful results in cases of poisoning with carbon dioxid or monoxid, or in drowning, lightning-stroke and electric shock. Especially the last-named two gave good prospects, even after hours, as proved by Hering. This man had succeeded in making human hearts beat eleven hours after he had removed them from the necropsy table. Similar observations were made by Kuliabko in hearts removed from children's bodies and in general anesthesia.

"First Aid in Alcohol Intoxication" was the subject of a paper by Mr. Windt. He pointed out that hitherto little had been done in this respect, as in the majority of cases persons found drunk in the streets were taken care of at the police station. These persons were patients, and should have the benefit of medical aid, as in over 50 per cent. there was complete loss of consciousness.

Sponge-fishing and its dangers were discussed by Dr. Flégel, who stated that over a hundred thousand souls directly found their living by this dangerous occupation. The old methods as used two thousand years ago were the safest: the trident, the search-rope or diving without any apparatus. These methods necessitated naturally that the work be done in shallow water with comparative safety. The adoption of modern methods (diving apparatus) enabled the men to work in greater depths, with the consequence of numerous fatalities, owing to derangements of the apparatus, and the rapid change of pressure of the surrounding medium (caisson disease). Except Austria-Hungary and Egypt, where the sponge-fishers are protected from these dangerous methods by the government, all other sponge countries (Greece, Turkey, India) had not yet found their way to do away with the dangerous system by law.

"First Aid and Prevention of Loss of Life in Navigation" was the title of a paper by Professor Hamm. Water-tight compartments arranged in the long axis as well as in the transverse diameter of a vessel were necessary, of course, with due regard to the stability. An important item was the relation of life-boats to the number of souls on board, not to the tonnage of the vessel. The water-tight compartments should not be considered at all in fixing the capacity of these boats. Careful consideration of the distribution of the cargo, the fuel and the storage of it, as well as the instalment of wireless telegraphy lessened the dangers on board a modern vessel. For every five hundred souls (or less) on board one doctor was necessary, and a ward besides a laboratory was advised for all ships taking long trips.

Aeronautics was discussed in several papers, of which one by Dr. von Schrötter dealt with the first-aid and prophylactic measures in high altitudes. He said that special precautions were needed in heights over 9,000 feet. The drop of temperature, of barometric pressure and of the oxygen content of the air were the chief dangers. An anointment of the skin exposed to the actinic rays of the daylight was necessary, and the eyes should be protected by preferably yellow-green — so-called "euphos"—glasses. Electric light, oxygen bulbs and life-belts (in flight over water) should be on board the air-vessel, as well as an emergency (first-aid) outfit. Great importance attaches to the perfect physiologic function of the heart, the ears and lungs. Loss of orientation might be caused by disturbance of the static organ, either by changes in the circulation or by the effects of the drop of barometric pressure. Another important point was the outlet of the motor from which the fumes could intoxicate the aeronauts, if carelessly adjusted. Smoking in hangars or in airships was absolutely dangerous. No person should approach an aeroplane (or balloon) about to descend. An apparatus for extinguishing fire should be at hand in all "air ports," as well as skilled medical help.

"First Dressing of Injuries" was the title of a paper by a member of the Vienna Ambulance Corps, Dr. Rosner. He emphasized the following rules: Fresh wounds should not be washed or probed; prolapsed organs should only be carefully supported (not replaced in the cavities of the body) and dressed with a simple dressing. Immobilization of fractures was a sine qua non in first aid. The first dressing should only enable the conveyance of the injured person to a hospital (or to his home). It should consist of a soft pliable, aseptic and absorbent substance. The first dressing was of paramount importance, especially on the battle-field. In all cases, however, reduction of luxations and fractures should be done as soon as possible, even on the scene of accident.

The sanitary precautions of the Austrian state railways were explained in a paper by Dr. Bagdan. Hospital cars and ambulance cars are running now on these lines, and a corps of male and female attendants is at the disposal of each district head office. First-aid boxes are carried in each express train, and for case of war or epidemics or large disasters usual freight-cars can be speedily converted into hospital-cars. A large, quite modern formaldehyd disinfection institute capable of holding two complete railway cars in the receiver is in service now. The cars will be disinfected in batches, and this method is said to be very cheap.

In connection with this congress, of which only the most interesting papers have been mentioned, there was an exhibition of appliances related to first aid: fire-outfits, smoke-proof outfits for firemen, modern instruments, statistics of accidents in factories, exhausters for dust-producing occupations and similar objects commanded the interest of those who had time to visit them. The majority of the members preferred to stay at the transactions and to help to organize an "International First Aid Committee," which will find means, after the model of the Red Cross, to render help in large disasters in a rapid and extensive way. This was the most important outcome of the congress.

BUDAPEST LETTER

(From Our Occasional Correspondent)

Budapest, Oct. 9, 1913.

How to Attain Old Age

Dr. Lorand Dezsö, in an address given before the Hygienic Society, said that the chances of attaining old age are much greater if we live much of our life in fresh country air. Statistics go to show, he said, for Budapest, Vienna and Berlin at least, that the fourth generation of the town dweller is unknown; but enough is currently reported to make the conclusion inevitable that the sine qua non of longevity is a certain amount of time spent in the country. The city child is subject to a number of disturbing conditions other than mere absence of creature comforts, which undermine the constitution by throwing too heavy a burden on the sense organs, through which exhaustion of the central nervous system follows; among these conditions are noises, a perpetual round of hurry, and unending sequences of incidents exhausting the attention, to which are superadded the physical discomforts of vitiated air and effluvia from human beings and waste organic products, besides offensive gases and infection-laden dust. To attain old age we have to relieve ourselves from worry, strains and anxieties, withdraw periodically from the whirl of effortful existence, modify our diet, omit the use of stimulants and narcotics, and spend reasonably long periods of time under pleasant conditions in practical retirement. Above all, amusements should be simplified and accepted rather than sought after. Only vegetable and semi-animal foods should be eaten.

Check on the Development of Mental Degeneracy

There are about fifty thousand persons of unsound mind in Hungary at the present day. Dr. Décsi has drawn attention to this fact in the medical society, adding the fact that more than one-third of this insanity is caused by syphilis and drink. He suggests the following rules for checking the development of mental degeneration at the present day: 1. Prevention of those who have been insane once from marrying. It may be stated as a certainty that many women who have had one attack of lunacy would have remained free from a second attack had they not married. 2. Immediate legislation for compulsory confinement of habitual drunkards, who are the greatest propagators of lunatics and degenerates, and who should therefore be legally restrained from inflicting their own vice on other human beings. 3. Prohibition of marriage by habitual drunkards. 4. Care in the administration of alcohol to women, as this very often makes the offspring a drunkard or a lunatic. 5. General reformation of the marriage system, with certain health requirements. 6. Prohibition of marriage when hereditary insanity exists on both sides. 7. Prohibition of marriage by paralytics, epileptics, consumptives and those affected with cancer. 8. Restriction of the liquor trade. 9. The establishment of intermediate houses, so to speak, where those suffering from acute, but curable, insanity, could be placed instead of being incarcerated in lunatic asylums. 10. Removal of all children born of nervous or neurotic parents from the influence of the parents, and from all home associations as soon as possible.

Marriages

Earl Warren Presley, M.D., New York City, to Miss S. Lois Exton of Arlington, N. J., at Poughkeepsie, N. Y., October 7.

Walter Stuart Woodruff, M.D., Mount Vernon, N. Y., to Miss Jessie Thurber Hequembourg, of Dunkirk, N. Y., October 18.

Thomas Russell Littlejohn, M.D., to Miss Mary Elizabeth Weeks, both of Pinewood, S. C., October 22.

Isaac Flavius Littell, M.D., to Miss Elizabeth Luckett Vance, both of Alexandria, La., November 3.

Allyn Bernard Moise, M.D., Shreveport, La., to Miss Edith Margaret Moore of New Orleans, October 22.

Robert M. Lowrie, M.D., Braddock, Pa., to Miss Laura R. Essick of Jerseytown, Pa., October 14.

Arnott Kell Duncan, M.D., Aldrich, Ala., to Miss Annot Vaught, at New Orleans, October 11.

Frederick Morris Frankfort Meixner, Peoria, Ill., to Miss Lillian Payne of Chicago, October 18.

Charles O. Burgess, M.D., Monmouth, Ill., to Miss Lura Harlin of South Bend, Ind., recently.

Lawrence Taylor Price, M.D., to Miss Louise Crutchfield, both of Richmond, Va., recently.

Hyman R. Wiener, M.D., Harrisburg, Pa., to Miss Belle Fried of Baltimore, October 22.

Edmund Russell Brush, M.D., to Miss Ruth Evans, both of Zanesville, Ohio, October 15.

Martha A. McCullough, to Nicholas Link, D.D.S., both of Dubuque, Ia., October 22.

Deaths

Hamilton Kelly Beatty, M.D. Jefferson Medical College, 1871; a veteran of the Civil War; superintendent of the bureau of health of Allegheny until the consolidation of that city with Pittsburgh; later deputy superintendent of the bureau of health, and superintendent of the bureau of sanitation of the Pittsburgh department of health; one of the original members of the staff of the Allegheny General Hospital; died at his home in Pittsburgh, October 6, from pneumonia, aged 65.

George John Kleinschmidt, M.D. College of Physicians and Surgeons, Chicago, 1906; formerly a Fellow of the American Medical Association; professor of anatomy in Marquette University, Milwaukee; for many years connected with the business management of newspapers in Milwaukee; died at his home in that city, October 12, aged 48.

John B. Grammer, M.D. Memphis (Tenn.) Hospital Medical College, 1894; a member of the Arkansas Medical Society, and formerly secretary-treasurer of the White-Cleburne County Medical Society; for more than twenty-five years a practitioner of White County; died at his home in Searcy, October 12, from angina pectoris, aged 51.

Byron B. Butler, M.D. Detroit College of Medicine, 1900; of Great Falls, Montana; surgeon for a construction camp of the Chicago, Milwaukee and St. Paul System between Great Falls and Lewistown; died in his camp office, September 27, from the effects of morphin, self-administered, it is believed, with suicidal intent, aged 34.

Armin Mueller, M.D. Wisconsin College of Physicians and Surgeons, Milwaukee, 1902; captain, Medical Corps, U. S. Army; a Fellow of the American Medical Association; died at Field Hospital No. 3, Texas City, Tex., October 14, from infection, following a compound fracture of the leg, aged 33.

William Arnold, M.D. Starling Medical College, Columbus, O., 1850; surgeon of the Thirty-Seventh Ohio Volunteer Infantry during the Civil War, thereafter a practitioner of Brownville, Neb., until 1884, and since that time a resident of Omaha; died at his home, October 3, aged 94.

Robert Devereaux, M.D. Jefferson Medical College, 1867; owner of the Cresson (Pa.) Water Company; president of the Cresson First National Bank; a member of the hospital corps of the army during the Civil War; died at his home, October 5, from disease of the liver, aged 68.

Charles Sinclair Elliott, M.D. Homeopathic Hospital College, Cleveland, 1886; professor of mental and nervous diseases and electrotherapeutics in Kansas City Hahnemann Medical College; neurologist to the Armour Home; died at his home in Kansas City, September 27, aged 50.

Frank W. Cartwright, M.D. University of the South, Sewanee, Tenn., 1903; demonstrator of practical anatomy in his alma mater; of New York City; a veteran of the Spanish-American War; died in the Reading (Pa.) Hospital, October 17, from acute nephritis, aged 36.

John D. Brundage, M.D. Yale University, New Haven, Conn., 1864; a member of the Medical Society of the State of New York; for twenty years a practitioner of West Hampton, L. I.; died at the home of his daughter in Goshen, Conn., October 21, aged 79.

George C. Butler, M.D McGill University, Montreal, 1865; of London, England; for thirty-seven years a practitioner of London, England, who arrived in Halifax, N. S., from England, July 17; died in that city July 19, from pneumonia, aged 61.

Harry Sumner Newlin, M.D. College of Physicians and Surgeons, Baltimore, 1883; a Fellow of the American Medical Association; surgeon to the McKeesport (Pa.) Hospital; died at his home in that city, October 19, from pneumonia, aged 54.

Per Emil Torgny Anderson, M.D. Rush Medical College, 1887; for many years a practitioner of Wahoo, Neb., but for the last two years a resident of his native city, Stockholm, Sweden; died in that city, September 19, aged 52.

Charles W. Baldwin, M.D. University of Nebraska, Lincoln, 1886; a pioneer practitioner of Douglas County, Nebraska; once a member of the state legislature; died at his home in Elkhorn, October 21, from pneumonia, aged 49.

Edward Terry Buck, M.D. Long Island College Hospital, Brooklyn, 1888; formerly a practitioner of Brooklyn and Indianapolis; was found dead in bed in a hotel in Indianapolis, October 19, from heart disease, aged 48.

Henry Thompson Peirce, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Medical Society of the State of New York; died at his home in New York City, September 27, aged 69.

Werner M. Bramigk, M.D. Fort Wayne (Ind.) College of Medicine, 1892; for many years a practitioner of Fort Wayne; died in his home in Detroit, Mich., September 27, from carcinoma of the throat, aged 53.

John Francis Marion Davis, M.D. Atlanta (Ga.) Medical College, 1860; of Choccolocco, Ala.; a Confederate veteran; died at the home of his daughter in Atlanta, September 27, from heart disease, aged 73.

Thomas J. Carpenter, M.D. University of Michigan, Ann Arbor, 1871; for many years an employee of the pension bureau, Washington, D. C.; died at his home in that city, September 17, aged 66.

Charles Albert Bemis, M.D. Jefferson Medical College, 1872; a member of the Massachusetts Medical Society; died at his home in West Medway, September 13, from cerebral hemorrhage, aged 70.

Frederick A. Hall (license, Kansas, 1901); a member of the Kansas Medical Society, and district surgeon for the Union Pacific System at Hoxie; died suddenly at his home, October 21, aged 60.

Sigmund Edward Bondy, M.D. Imperial Royal Karl-Ferdinand University, Prague, Bohemia, 1877; of Passaic, N. J.; died in Trenton, N. J., August 21, from pulmonary abscess, aged 54.

William Walton Black, M.D. Tulane University, New Orleans, 1871; for many years physician to the Fink and Poydras asylums; died at his home in New Orleans, September 19.

David Cowie (license, Florida); of New Smyrna; formerly a surgeon in the British Navy; died in the Shelter Sanatorium, New Smyrna, October 31, from senile debility, aged 82.

Olive Ophelia Nelson, M.D. Hahnemann Medical College, Chicago, 1900; a member of the Indiana State Medical Association; died at her home in Huntington, September 23, aged 53.

W. H. Denton (license, Tenn., 1910); of Reelfoot, Tenn.; a member of the Tennessee State Medical Association; was shot and instantly killed at Cherry, Tenn., October 12, aged 33.

Jeremiah Frazier Dively, M.D. Bellevue Hospital Medical College, 1876; of Pittston, Pa.; died at the home of his son in West Pittston, October 5, from cerebral hemorrhage.

Erastus Manford Drollinger, M.D. Eclectic Medical Institute, Cincinnati, 1878; died at his home in South Bend, Ind., October 2, from disease of the stomach, aged 60.

Robert W. Campbell, M.D. Washington University, St. Louis, 1873; for forty years a practitioner of Bowling Green, Mo.; died at his home, October 7, aged 68.

Washington B. Cousins, M.D. Western Reserve University, Hudson, Ohio, 1862; of Ashland, Ohio; died in the Samaritan Hospital in that city, October 12, aged 74.

William Benson Clowe, M.D. Hahnemann Medical College, Philadelphia, 1883; died at his home in Walla Walla, Wash., September 30, from nephritis, aged 67.

John Boston Britt, M.D. Jefferson Medical College, 1889; of Princeton, S. C.; died about October 18, and was buried at McCormick, S. C., October 20, aged 47.

Lewis Blanchard, M.D. University of Buffalo, N. Y., 1866; one of the oldest practitioners of Delaware County, Ia.; died at his home in Edgewood, August 5.

Charles A. Ayers, M.D. Hahnemann Medical College, Philadelphia, 1888; died at his home in Philadelphia, October 9, from cerebral hemorrhage, aged 61.

Madison James Conant, M.D. University of Michigan, Ann Arbor, 1888; died at his home in Tawas City, Mich., October 7, from bulbar paralysis, aged 54.

Rufus Childs, M.D. Meharry Medical College, Nashville, Tenn.; died at his home in Houston, Tex., about September 24, aged 45.

Alexander J. Erwin (license, Ohio, 1896); a practitioner since 1864; died at his home in Mansfield, October 9, aged 73.

Abram Orrinzer Allen, M.D. Rush Medical College, 1886; died at his home in Mountain Lake, Minn., October 19, aged 57.

John A. Bush, M.D. Louisville (Ky.) Medical College, 1890; died at his home in Greenville, Tex., October 23, aged 46.

Everett L. Day, M.D. Barnes Medical College, St. Louis, 1906; died at his home in St. Louis, August 29, aged 35.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE MEDICAL TIMES ADVERTISEMENTS

A Discussion of Some "Oversights" and the Ethics of Journalism

Two or three weeks ago we published letters from two physicians calling attention to an advertisement of a "cancer cure" hospital appearing in the *Medical Times*. As a result of THE JOURNAL'S comments, some of the physicians who were listed as "contributing editors" of the *Medical Times* wrote that they had requested that their names be withdrawn from this list. In reply to at least some of these letters, the editor of the *Medical Times* wrote asking them to reconsider their decision and offering as an excuse the statement that the appearance of the "cancer cure" hospital advertisement was an oversight. In this connection the following letter from the *Medical Times*, addressed to THE JOURNAL of the American Medical Association, is pertinent:

> "*Gentlemen*:—We note in your issue of October 18 an article calling attention to an advertisement which appears in the columns of this journal, and to which your editor rightly objects.
>
> "The advertisement in the *Times* was the result of an oversight, and it will not reappear.
>
> "While we are indebted to you for thus bringing the matter to our attention, we cannot but feel that a letter written to us would have been more in keeping with the ethics of journalism.
>
> "Very truly yours, THE MEDICAL TIMES."

It will be noticed that this letter, like the letters sent to other physicians, ignores altogether the most important point made by THE JOURNAL in its criticism of that publication's advertising policy. THE JOURNAL said in this connection:

"If our correspondents will go through the advertising columns of the *Medical Times* they will find many, many other frauds, less cruel perhaps than the Kellam advertisement, but no less disreputable or discreditable to the medical profession."

The *Medical Times* apologizes for the advertisement of the Kellam Cancer Cure Hospital but ignores altogether the fact that the hospital advertisement was but one of many equally discreditable. We turn to recent issues of the *Medical Times* and we find it fairly reeking with advertisements of proprietary preparations that are a disgrace to the medical profession, many of them having been repeatedly exposed in THE JOURNAL. We find, for instance, a quarter-page advertisement of the Expurgo Manufacturing Company. "Expurgo Anti-Diabetes," we are solemnly told in the pages of the *Medical Times*, is:

> "The only reliable and thoroughly tested remedy for the cure of Diabetes Mellitus and Insipidus."

This wretched fraud, which also is advertised in true "patent medicine" style direct to the public, is presented to a presumably intelligent profession as a "cure" for a disease which so far has baffled the best brains in the scientific world.

"Expurgo Lapis" we are told, also via the *Medical Times*, is:

> "The only known cure for gall-stones, kidney and bladder stones, gravel and all kidney trouble arising from uric-acid origin.'

Did Kilmer's Swamp-Root ever claim more? "Diabetes is no longer an incurable disease" runs the advertisement of the Jireh Diabetic Food Company, yet the editor of the *Medical Times* must know that in THE JOURNAL[1] and in the reports of state chemists the Jireh diabetic foods have been shown time and again to be among the most dangerous and fraudulently exploited products sold to the unfortunate diabetic.

Phenalgin,[2] twin brother to the Antikamnia fraud, shouts its inferential falsehoods in a half-page display. Micajah's

---

[1] THE JOURNAL A. M. A., Dec. 14, 1912, March 22, 1913, and April 5, 1913.

[2] Propaganda for Reform, Ed. 8, pp. 10 and 267.

Wafers,[3] the alum-borax mixture long advertised as a cure for gonorrhea, endometritis, etc., may also be found, as well as many other preparations exposed at various times by THE JOURNAL. For example: Anasarcin[4], Campho-Phenique,[5] Papine,[6] Bromidia,[7] Cactina Pillets,[8] Pluto Water,[9] Prunoids,[10] Sanatogen[11] and Sal Hepatica.[12]

What excuse can the *Medical Times* offer for the presence of these frauds in its pages? Are these, too, "the result of an oversight"? Presumably for thus bringing to its attention these various *other* disreputable advertisements, THE JOURNAL will be accused again of violating "the ethics of journalism." If calling attention to fraudulent advertisements is out of keeping with the ethics of journalism, *what*, pray, must be said of the publications that are willing to share in the profits of such fraudulent exploitation? But, and we cannot repeat it too often, the *Medical Times* is but *one of a class*, neither worse *nor* better than many other medical journals whose financial support comes from the proprietary interests rather than from the medical profession. The responsibility for the *existence of these journals really rests not on the business* men who conduct them on a commercial basis, but on the physicians *who tolerate* or encourage them in any way.

"A CONTRAST IN MEDICAL PUBLICATIONS"

Under this title *The Journal of the Oklahoma State Medical Association*, in its October issue, comments pertinently, thus:

"Last month we had the pleasure of calling attention to the high class of *The Journal of the Southern Medical Association* and its advertising pages.

"We regret to have to note a contrast on analyzing a journal familiar to many Oklahoma readers. The *Medical Herald*, the official organ of the Medical Association of the Southwest, has long been an object of comment for its laxness in the acceptance of questionable advertising. That this laxness will eventually build up a defense for inferior products and render the physician users of them callous along ethical lines is evident from the tenor of editorials in this publication.

"The August issue of the journal contains a criticism of the Carnegie Foundation and the American Medical Association in their efforts to improve the condition of our medical colleges.

"The writer of this editorial, Dr. T. D. Crothers of Hartford, Conn., a contributing editor, bemoans the fact that the medical colleges of the United States have been reduced to 117; that it is proposed to make a reduction of twenty-five more. Dr. Crothers objects to reports of inefficiency of the medical institutions, but suggests no remedy.

"In the September issue of his journal he objects to the method of publication of papers in THE JOURNAL of the American Medical Association, and intimates that there is a trust or combination for the purpose of limiting the output of that journal to those who are popular with the section officers.

"It is a notorious fact that preachers often overlook their greatest field of activity in their own immediate circle. That reformers overlook *in their own neighborhood a fertile field* for work, and in this connection we have only to call attention of this able man to his own medical publication, and, incidentally, we desire also to call the attention of the Oklahoma readers to the advertising columns of this journal and have to suggest that they use their influence to reform its advertising pages.

"The August issue contains the advertisements of sixty-four drugs or compounds; *of the sixty-four, fifty-five have either* not been accepted by the Council on Pharmacy and Chemistry of the American Medical Association, have been thoroughly tested and failed, or found wanting in various degrees.

"Among the oldest offenders, we find Anasearin, Cactina Pillets, Hayden's Viburnum Compound, Triacol, Farwell and Rhines Gluten Flour, Pepto-Mangan (Gude), Nephritin, Sinkina and many others.

"Dr. Crothers is an alienist and neurologist, we understand, of some note. We wonder how much 'Neurilla,' manufactured by the Dad Chemical Company of New York, he uses in his practice? How much 'Neurosine' he orders dosed out in his Hartford hospital? An inspection of the advertising pages of this journal with which he is connected will convince anyone that it is a most notorious offender against ethics in carrying these advertisements to the medical profession existing to-day in this country. We note advertisements of compounds that were guilty of various shortcomings more than ten years ago, and that have not improved in that time. A great many of the fifty-five undesirable compounds have been criticized either by direct report of the Council or editorially in THE JOURNAL of the American Medical Association more than once. Most of them are known to be rank frauds, others claimers of virtues that never existed, the remainder just indifferent products.

"Just as long as the unthinking physician supports these medical publications by subscribing for them, or using the products advertised in them, he will continue to do himself an injustice, and ofttimes a severe one. We prayerfully commend the advertising pages of the *Medical Herald* to Dr. Crothers and suggest that there his explosive activity will find something worth working on."

THE FRIEDMANN "CURE"

Two Letters — Take Your Choice

EISNER-MENDELSON CO.
90 WEST ST. NEW YORK

October 31, 1913.

To the Editor:—An item appears in your issue of October 25, wherein it is stated that the Eisner-Mendelson Company was *reported to have* bought the rights for the Friedmann vaccine. This impression is entirely erroneous, and it was stated by us publicly at *the time that* the Eisner-Mendelson Company has *no* interest in this matter at all. We will thank you to kindly correct this item.

Yours very truly,
EISNER-MENDELSON Co.
per William J. Eisner.

A. E. BUTLER & CO.
Members Chicago Stock Exchange, Stocks and Bonds
116 SOUTH LA SALLE STREET, *CHICAGO, U. S. A.*

Dr. ———, May 15, 1913.
R———, *Illinois.*

Dear Sir:—We would like to call your attention to the Eisner-Mendelson Co. *preferred stock, which for the past* eight years has paid 8 per cent. on its par value *($10.00).*

THIS COMPANY HAS LATELY ACQUIRED THE FRIEDMANN CURE FOR CONSUMPTION;[1] *and where opinions differ as to the merits of this serum, it can in* no way impair the present *earning* capacity of the company, but, on the contrary, may increase its earning power materially. The preferred stock in this *company can be bought now at about $9 per share, netting* approximately 8.09 per cent. on the investment. The principal stockholders are doctors and dentists.

We have a *limited amount of this stock which* we believe we can procure if you desire same, and if so, *would suggest* your sending Chicago exchange through your local bank *to* their Chicago correspondent, instructing them to turn money *over to us on the delivery of the* number of shares you ordered. Kindly advise us at the same time.

Awaiting the pleasure of hearing from you, we are

Yours very *truly,*
A. E. BUTLER & Co.

---

[3] *Propaganda for Reform*, Ed. 8, p. 138
[4] *Propaganda for Reform*, Ed. 8, p. 10.
[5] Propaganda for Reform, Ed. 8, p. 25.
[6] Propaganda for Reform, Ed. 8, p. 262.
[7] Nostrums and Quackery, Ed. 2, p. 589; Propaganda for Reform, Ed. 8, p. 182.
[8] *Propaganda for Reform* Ed. 8, p. 21.
[9] THE JOURNAL, March 29, 1913, p. 1013.
[10] Propaganda for Reform, Ed. 8, p. 276.
[11] Nostrums and Quackery, Ed. 2, p. 470; Propaganda for Reform, Ed. 8, p. 293.
[12] Nostrums and Quackery, Ed. 2, p. 639; Propaganda for Reform, Ed. 8, p. 292.

[1] *Capitals ours.*—Editor THE JOURNAL.

Correspondence

A Method of Securing Qualified Men

To the Editor:—A civil service examination for health director of the city of Oakland, Cal., was conducted under the auspices of the U. S. Public Health Service, with the permission of Surgeon-General Rupert Blue, in cities in which the service had stations. The examination was held on July 30 and 31, and was conducted by the civil service board of Oakland for all applicants residing in the state of California.

The board was fortunate in securing the aid of an advisory committee to assist it in preparing the questions and checking the examination papers. The committee consisted of Dr. E. N. Ewer, health officer of the city of Oakland; Dr. H. G. Thomas, Oakland; Dr. W. F. Snow, secretary of the California State Board of Health; Dr. W. A. Sawyer of the State Hygienic Laboratory, and Prof. C. G. Hyde of the University of California.

The civil service board received twenty-seven applications from physicians in various parts of the United States. The requirement that the health director must give his entire time to the city's business naturally limited the aspirants to men who are particularly interested in public health work. Nineteen men took the examination, of whom eleven passed.

Under the charter of the city of Oakland, the three men whose names are highest on the eligible list must be certified to the appointing power by the civil service board. The appointing power has the privilege of selecting any one of these men to fill the position.

Dr. Richard G. Brodrick of San Francisco passed highest on the list with a percentage of 94.3. Dr. Brodrick is the present health officer of the city and county of San Francisco, and has held this position for a number of years.

Dr. Norman E. Williamson of Lahontan, Nev., is second on the list with a percentage of 83.7. Dr. Williamson is in the United States Public Health Service and was for four years in charge of one of the health districts in the Panama Canal Zone.

Dr. Allen F. Gillihan of Berkeley, Cal., is third on the list with a percentage of 82.9. Dr. Gillihan is president of the Board of Health of the city of Berkeley and has devoted a large amount of time to the study of public health work.

Frank Colbourn, Oakland, Cal.,
Acting Secretary, Civil Service Board.

The following are the questions used in this examination:

WRITTEN EXAMINATION (TIME, FOUR HOURS)

1. Discuss diphtheria, bubonic plague, epidemic cerebrospinal meningitis, small-pox, measles and tuberculosis, under the following heads:
   (a) Methods of transference to human beings.
   (b) Periods of incubation.
   (c) Methods of defense against the disease.
   (d) Methods of control of its spread.

2. How would you investigate an outbreak of typhoid fever with a view to discovering its source? Devise an inspector's data blank for such an investigation. Outline instructions which should be issued to the public and to physicians.

3. How should a health officer proceed in making a survey to determine the prevalence of (*a*) malaria, (*b*) hookworm disease?

4. Outline, and give reasons for, a set of rules which you would consider reasonable for the control of (*a*) scarlet fever and (*b*) epidemic poliomyelitis, in the present state of our knowledge regarding these diseases.

5. Criticize the value of formaldehyd fumigation of dwelling-rooms after tuberculosis, diphtheria, yellow fever and measles.

6. What clinical and laboratory findings would you expect in a case of human bubonic plague, and how would you obtain your material for examination?

7. Discuss the relative responsibilities of city, county and state authorities for the supervision of a city milk-supply. Give details for the practical administrative control of the quality of such a milk-supply.

8. Of what benefit to the public health is an efficient meat- and market-inspection service?

9. Many cases of occupational diseases and industrial accidents occur annually in the United States. Name several of these diseases and common accidents and outline a constructive program for their prevention.

10. Outline the approved methods of disposal of the following classes of municipal refuse, severally and in groups: garbage, rubbish, street-sweepings, ashes, dead animals.

THESIS (TIME, FOUR HOURS)

Write an original discussion, not to exceed three thousand words, on the subject of "School Inspection."

The following information regarding Oakland is furnished in order that the candidate may acquaint himself with the more important facts.

The city of Oakland has fifty schools providing for the usual primary, grammar and high-school grades. Most of the buildings are less than 10 years old and several, including one high school, are under construction at the present time. The older buildings are of two and three stories, the newer ones have the rooms all on one floor and provide in part for open-air classes. Several are of the patio style of construction. The department employs the whole time of one physician, whose title is Superintendent of School Hygiene, and the whole time of seven trained nurses. The superintendent of school hygiene, besides attending to the usual duties of such an official, delivers lectures to the boys in the high schools on sex hygiene and kindred subjects. These subjects are taught to the girls by a woman physician who is also in the active practice of medicine.

EDUCATION AND EXPERIENCE

1. State your age, birthplace and present address.

2. What high-school and college education did you have before studying medicine? Give names of institutions, dates of attendance and degrees conferred. State fully.

3. Give a statement regarding the nature of your college work in (*a*) biology, (*b*) other subjects.

4. Give the name of the medical college which you attended, dates between which you were in continuous attendance, the degrees conferred and the dates when the degrees were received.

5. Give a statement regarding any special training in public health which you received in the medical school. State fully.

6. Describe your hospital experience (*a*) as intern or extern. (*b*) as visiting physician. Make special mention of your hospital training in communicable diseases. Name the hospitals and state their location. Answer fully.

7. What experience have you had in executive work?

8. What practical experience have you had in public-health work?

9. State any special experience, not already mentioned, which would be of value in the position for which you are applying. Mention any experience in teaching or research in medicine or public health.

PERSONAL QUALIFICATIONS (ORAL)

1. What use would you make of the laboratory in your administrative work as the health officer of a city?

2. Given a case suspected of being leprosy. With what diseases might the disease be confused? How would you reach a decision regarding the diagnosis?

3. Name the several preparatory methods of treating municipal sewage and the several methods by which raw or treated sewage may finally be disposed of.

4. What methods do you consider most effective in reducing the prevalence of venereal diseases?

5. What practical measures do you consider the health officer can institute to insure complete birth and morbidity returns?

Method of Sterilizing (?) Rubber Gloves

To the Editor:—A method of sterilizing (?) rubber gloves by means of 2 tablets (weight not given) of mercuric cyanid in 4 ounces of alcohol and 4 ounces of talc is recommended by Dr. Ray Ernest Smith in The Journal, Oct. 18, 1913, p. 1475. The solution is poured over the gloves, and they are removed and left to dry in a sterile towel. The time of application of the germicidal fluid is not given.

This method of sterilization is useless. Mercuric cyanid has been shown in my own experiments to have no action on most of the pus-forming organisms, particularly *Staphylococcus pyogenes aureus*. Harrington of Boston (*Boston Med. and Surg. Jour.*, Jan. 14, 1904) had a similar experience in obtaining no germicidal effect from mercuric cyanid after thirty minutes with a 1:500 solution, after which he desisted and considered the salt useless. Organic matter still further lowers the germicidal action. Dr. Smith's method is therefore useless. The alcohol may have a slight effect, about the same as the cyanid.

The way to sterilize rubber gloves is to boil them in water or glycerin or put them in the autoclave at a temperature of 120 C. (248 F.), with a pressure of 15 pounds for thirty minutes. Steam at 100 C. (212 F.) without pressure will not do it. They may be boiled and kept in glycerin conveniently.

The mercuric salts, bichlorid, iodid and cyanid, in the presence of organic matter, such as blood, pus, serum, soap or skin, are ineffective because they are neutralized and the insoluble albuminate is formed. Bichlorid is very strong under test-tube conditions; but, if organic matter is added, the salt retains no germicidal effect whatever. This has been repeatedly proved, as, for example, by Gebbert, who grew cultures after a fifteen-minute application of mercuric chlorid solution, 1:1,000, in the presence of albuminous fluid. Somerville and Walker (*Med. Press*, Feb. 14, 1906), also showed that, by the addition of organic matter, the germicidal value of mercuric chlorid dropped much below that of phenol (carbolic acid) in equal strengths. Anthrax spores grew after fifteen-minute treatment with mercuric chlorid, 1:120.

Conditions of practice are such that disinfection by the mercuric salts must always be done in the presence of organic matter, soap, serum, blood, pus, skin or mucous membrane. All of these render the mercury salts ineffective and useless. How long will surgeons persist in the vain delusion that they can sterilize their hands with solutions of these salts? They are worse than useless in that they create a false sense of security and a belief in their germicidal value, which would be naive were it not pathetic and serious in its practical results. If there is any degree of uselessness, cyanid is the worst.

Ellice McDonald, M.D., New York.

Mishaps Under Salvarsan

To the Editor:—Since the introduction of salvarsan three and one-half years have passed. During this period there have been reported in the literature about two hundred fatalities and the occurrence of blindness, deafness, hemorrhagic encephalitis, paralysis, epileptiform convulsions and severe intoxication following its use. As many physicians are not in the habit of writing for publication, and as others shrink from any publicity in regard to cases of syphilis in their private or contract practice, or for other reasons, many of the deaths and mishaps from the use of salvarsan have not been published. Therefore, I ask those physicians who have had any experience with deaths, blindness, paralysis, etc., or any of the other severe menacing disturbances following salvarsan, to send me brief clinical reports in order that I may compile comprehensive statistics. In making use of the material the names of the physicians supplying the information and their place of residence will not be mentioned. It is without doubt of the greatest importance that these hitherto ignored instances shall be collected, in order that there shall be placed in the literature such information that a decision can be made as to the actual harmlessness or the danger of salvarsan. Please address: W. H. Dreuw, M.D., Potsdamerstrasse 31 a, Berlin, Germany.

[The foregoing is a translation of a German letter just received from Dr. Dreuw. He is a dermatologist, one of the collaborators on the *Dermatologische Wochenschrift*, published by Unna of Hamburg.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOXICITY OF THORIUM

To the Editor:—Will you please inform me whether or not thorium, the radio-active metal, is a poison? If it is a poison, what is its physiologic action? What is the maximum and minimum dosage?

A. H. Jahn, M.D., Pittsburgh, Pa.

Answer.—Metallic thorium and its insoluble compounds, such as the oxalate and dioxid, are non-toxic. Some experiments have been made with them (oxalate) in the attempt to control vomiting, and (metal and dioxid) in roentgenographic work in the gastro-intestinal tract. In general the results were not markedly superior to those obtained with bismuth compounds. In the Roentgen-ray work 30 gm. of the metal have been administered daily without toxic effects. A pharmacologic study of thorium salts has been made by Chase and Gies and by Sollmann and Brown (*Am. Jour. Physiol.*, 1907, xviii, 426 and 457).

Aqueous solutions of thorium salts precipitate proteins and protoplasmic materials in general, blacken and precipitate blood, bleach and harden muscle and harden and shrivel practically all tissues. They have no appreciable effect on the unbroken skin. Thorium nitrate has the properties of an astringent irritant. Its irritant effects can be avoided by dissolving it in a solution of sodium citrate. Its toxicity is very low. At one time thorium nitrate was described in New and Nonofficial Remedies as a non-proprietary article. The following statement in regard to its action and usage was given:

"The soluble thorium salts bear a close resemblance to alum in their local astringent and irritant properties. They are not absorbed from the alimentary canal. Hypodermically they cause local sloughing, and intravenously they kill by coagulating the blood. The non-precipitant double salts are practically non-toxic, even intravenously. They are excreted by the kidneys. Thorium salts are fairly radio-active. They have been recommended for local application in malignant diseases and thorium emanation has been inhaled in phthisis. Reliable evidence as to the therapeutic value of thorium salts is lacking."

The eligibility of thorium nitrate having been questioned, the committee which looked into the matter reported that the substance appeared to be little used and that its retention in New and Nonofficial Remedies was not justified. Accordingly the description of the product does not appear in New and Nonofficial Remedies, 1913.

RELIEF OF HEADACHE AFTER POISONING BY ILLUMINATING-GAS

To the Editor:—What are the quickest and most efficient remedies to relieve the intense headaches as a consequence of illuminating-gas poisoning? Kindly give the names of the drugs, in their relative order of efficiency, the doses and frequency of administration, and also state which one has been found the most reliable. I should also be glad to have a detailed account of treatment and any other available data.

R. H. Kilduffe, M.D., Philadelphia.

Answer.—Articles on the treatment of gas poisoning make little reference to headache. We have been able to find only the following:

Peterson and Haines ("Legal Medicine and Toxicology," ii, 655) state that the inhalation of oxygen prevents the headache subsequent to poisoning.

Robin (*Gaz. méd. belge*, 1909, xxii, 79, abstr., The Journal, Dec. 18, 1909, p. 2116) warns against using the ordinary remedies for headache which may impair the blood and says that morphin should be the main reliance. Caffein and strychnin should be used if tonics seem to be indicated.

The following references to the treatment of illuminating-gas poisoning may be consulted:

McConnell, J. W., and Spiller, William G.: A Clinicopathologic Study of Carbon Monoxid Poisoning, The Journal, Dec. 14, 1912, p. 2122.
O'Malley, Mary: Carbon Monoxid Poisoning with Acute Symptoms, Relapse with Psychotic Symptoms, and Complete Recovery, The Journal, Oct. 26, 1912, p. 1540.
Courmont, J.; Morel, and Mouriquand, G.: Chronic Carbon Monoxid Intoxication, *Bull. de l'Acad. de méd.*, Dec. 20, 1911; abstr., The Journal, Feb. 4, 1911, p. 384.
Dana, H. W.: Gas Poisoning, *Boston Med. and Surg. Jour.*, May 27, 1909; abstr., The Journal, July 10, 1909, p. 118.
Jones, G. J.: Illuminating-Gas Poisoning, *Am. Jour. Med. Sc.*, January, 1909; abstr., The Journal, Feb. 6, 1909, p. 473.
Handbook of Therapy, p. 114.

SODIUM FLUORID IN ABDERHALDEN'S SERODIAGNOSIS FOR CANCER

To the Editor:—I note with much interest your editorial on "Abderhalden's Test in Cancer" (The Journal, Oct. 18, 1913, p. 1461). I should appreciate reference to articles giving the sodium fluorid technic. I have used the regular Abderhalden technic, with plain distilled water and cancer tissue in a dozen or more cases, with favorable results, but am not acquainted with the technic to which you refer.

Clarence F. Ball, M.D., Rutland, Vt.

Answer.—Erpicum (*Bull. de l'Acad. roy. de méd. de Belg.*, 1913, xxvii, 624), used the following method: The serum from the suspected cancer patient is obtained in the usual way with the usual aseptic precautions. The fragments of cancer tissue (1 cm. in diameter) are boiled in about twenty times their volume of water for ten minutes; a sample of this water is now tested for the biuret reaction, and if a positive result is obtained the fragments of tissue are bathed in distilled water with 3.5 per cent. sodium fluorid until the liquid no longer gives the biuret reaction. A bit of tissue is now placed in the dialyzer, 2 c.c. of serum are added, and the dialyzer introduced into a suitable bottle or vessel containing a 1.5 or 2 per cent. sodium fluorid solution and the whole is kept at 22 C. (71.6 F.) for thirty-six hours. A control dialyzer without the cancer tissue is prepared in the same way. Whether or not any new substances—peptones, etc.—have appeared in the fluid outside the dialyzer is determined by the biuret reaction and other methods. Erpicum used the biuret reaction. He obtained the biuret reaction only once with the water in which he boiled the cancer tissue preliminary to dialysis, and once as the result of contamination with the serum in the control dialyzer. Sodium fluorid is used in such experiments as these because in the concentrations mentioned it is germicidal without affecting enzymatic processes.

THE ITALIAN PHYSICO-CHEMICAL ACADEMY AND THE SOUTHERN CALIFORNIA PRACTITIONER

To the Editor:—1. I enclose a communication from the "Italian Physico-Chemical Academy" advising me of election to this "academy" as honorary member. Will you be good enough to inform me if anything is known of this academy, whether it is first-class and has any standing among European scientific societies, etc.? I do not intend to be "stung," nor do I want to pass a good thing.

2. Also, is the *Southern California Practitioner* of Los Angeles (Dr. George E. Malsbary, editor) all right? He is asking for an abstract of a recent paper of mine to be paid for in the form of five yearly subscriptions worth $10 sent to five persons I shall name. Sorry to trouble you, but both of these propositions sound "fishy."

HENRY W. BURNETT, M.D., Providence, R. I.

ANSWER.—1. Our correspondent's suspicions regarding both the "academy" and the medical journal are well founded. The propositions *are* "fishy." The Italian Physico-Chemical Academy is, as we have repeatedly stated, a fake institution whose chief purpose seems to be that of selling membership certificates to the gullible. The thing was written up in THE JOURNAL, Oct. 21, 1911, under the title "Bogus Scientific Institutions"; it was also referred to in the Berlin Letter of the same issue. Again our readers were warned in the issues of May 11, 1912, p. 1455, March 8, 1913, p. 770, and May 10, 1913, p. 1480.

2. The scheme that certain medical journals work for the purpose of obtaining a subscription list that will pass muster with the postal authorities by offering to pay for an abstract with a certain number of subscriptions was referred to in THE JOURNAL, Oct. 11, 1913, p. 1391, and Oct. 18, 1913, p. 1473.

TREATMENT OF PELLAGRA

To the Editor:—Is there any specific treatment for pellagra? If not, kindly tell me what has proved the most effectual.

R. W. WILEY, M.D., Salem, Va.

ANSWER.—Most authors agree that there is no specific treatment for pellagra, but some assert that the one drug which is most effectual is arsenic. Arsenic has been tried in various forms, including, in addition to the ordinary official preparations, atoxyl, sodium cacodylate and salvarsan. None of these appears to have produced such results that it can be regarded as a cure for the disease. Niles recommends arsenite of iron given by hypodermic injections and sodium cacodylate in doses of ¾ grain, injected on alternate days under careful aseptic precautions. Proper diet and proper hygienic conditions must be provided. Hydrotherapy is regarded as very useful by some, and others have recommended the transfusion of blood from those who have recovered from the disease. This method, however, has received only a limited application.

RUSSIAN MEDICAL JOURNALS

To the Editor:—Please name some Russian medical journals and places of publication.

M. WEINSTEIN, M.D., Rockaway Park, L. I.

ANSWER.—The following are among the leading Russian journals, with addresses of subscription offices:

Russky Vrach, Nevskii 14, St. Petersburg, Russia. Weekly; about $7 a year.

Meditsinskoe Obozrienie, Arbat Dom Obshestva Russkich Vratchi, Moscow, Russia. Semimonthly; about $5.25 a year plus postage.

Pediatria, 31 Nikolaevskaya, St. Petersburg, Russia, Monthly, about $3 a year plus postage.

STATES WITH WHICH PENNSYLVANIA RECIPROCATES

To the Editor:—Please tell me with what other states the Pennsylvania State Board reciprocates. SUBSCRIBER.

ANSWER.—Pennsylvania has established reciprocal relations, on the basis of an examination only, with Illinois, Indiana, Louisiana, Nevada, New Jersey and Ohio. The Bureau of Medical Education and Licensure of Pennsylvania is given authority in its discretion to accept certificates of license issued by other states in lieu of an examination when those states accord a like recognition of licenses issued in Pennsylvania.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

MASSACHUSETTS: Regular, State House, Boston, Nov. 11-13. Sec., Walter P. Bowers, Room 159, State House, Boston.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Boozer, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

Colleges Adopt Higher Requirements

The new announcement of the University of Arkansas, Medical Department, indicates that after Jan. 1, 1914, that school will require for admission one year of collegiate work, including courses in physics, chemistry, biology and German or French, in addition to a standard four-year high-school education. The Medical College of South Carolina also announces the adoption of the same requirement after the beginning of the year. This makes seventy-nine colleges which either already are enforcing the entrance requirement of one or two years of collegiate work, or which, according to their announcements, will do so after Jan. 1, 1914.

Illinois June Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 17-19, 1913. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 285, of whom 258 passed and 27 failed. Two candidates withdrew and for five candidates the examination was incomplete. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
Bennett Medical College	(1913)	14
Chicago College of Med. and Surg.	(1913)	102
Chicago Medical College	(1890)	1
Hahnemann Medical College and Hosp., Chicago	(1913)	16
Hering Medical College	(1913)	3
Jenner Medical College	(1913)	6
Illinois Medical College	(1911)	1
Northwestern University	(1913)	34
Rush Medical College	(1911) (1912) (1913,19)	21
[illegible]	(1913)	46
[illegible]	(1913)	1
[illegible] Medicine	(1896)	1
[illegible]	(1913)	5
[illegible] St. Louis	(1910) (1913)	2
Columbia University, Coll. of P. and S., N. Y.	(1896)	1
University of Pennsylvania	(1887)	1
Meharry Medical College	(1913)	1
University of Tennessee	(1913)	1
Vanderbilt University	(1913)	1
FAILED		
[illegible]	(1913)	2
[illegible] Surgery	(1910) (1913, 11)	12
[illegible] Hosp., Chicago	(1910) (1913)	2
[illegible]	(1913)	3
[illegible]	(1910)	1
[illegible] Chicago	(1910)	1
[illegible] University	(1913)	1
American Medical College, St. Louis	(1913)	1
College of Phys. and Surgs., St. Louis	(1899) (1910)	2
Meharry Medical College	(1904)	1
Royal University of Palermo	(1911)	1

Illinois April Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at

Chicago, April 29-May 1, 1913. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 181, of whom 154 passed and 27 failed. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
University of Southern California	(1909)	1
Denver and Gross College of Medicine	(1907)	1
Bennett Medical College	(1911,2) (1912,4) (1913,12)	18
Chicago College of Medicine and Surgery	(1911) (1912,4) (1913,7)	12
Hahnemann Medical College and Hospital, Chicago	(1910) (1912,3)	4
Hering Medical College	(1912) (1913,3)	4
Northwestern University	(1909) (1912) (1913,9)	11
Rush Medical College	(1912,2) (1913,38)	40
University of Illinois	(1911) (1912,3) (1913,48)	52
University of Iowa, College of Medicine	(1912)	1
Harvard Medical School	(1900)	1
College of Phys. and Surgs., St. Louis	(1887)	1
St. Louis University	(1912)	1
Washington University, St. Louis	(1896) (1901)	2
Medical College of Ohio	(1903)	1
University of Pennsylvania	(1898)	1
Meharry Medical College	(1912)	2
Royal University of Munich	(1892)	1
FAILED		
Bennett Medical College	(1912)	3
Chicago College of Medicine and Surgery	(1911) (1912) (1913)	3
College of Medicine and Surgery, Chicago	(1909)	1
Hahnemann Medical College and Hosp., Chicago	(1912)	3
Jenner Medical College	(1911) (1912,2)	3
National Medical University, Chicago	(1903) (1906)	2
Reliance Medical College	(1911)	1
University of Illinois	(1912)	2
College of Phys. and Surgs., Keokuk	(1877)	1
Hospital College of Medicine, Louisville	(1904)	1
Barnes Medical College	(1905) (1906) (1910)	3
College of Phys. and Surgs., St. Louis	(1910)	1
Meharry Medical College	(1910) (1911)	2
University of Parma	(1901)	1

West Virginia April Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the oral, written and practical examination held at Huntington, April 14-16, 1913. The number of subjects examined in was 16; total number of questions asked, 170; percentage required to pass, 80. The total number of candidates examined was 16, of whom 10 passed and 6 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1913)	81*
Chicago College of Phys. and Surgs., Baltimore	(1912)	82, 87, 88
University of Maryland	(1911)	84
Maryland Medical College	(1904) 83; (1912)	86
Starling Medical College	(1898)	80
Lincoln Memorial University	(1912)	82
Medical College of Virginia	(1912)	86
FAILED		
Illinois Medical College	(1910)	79
University of Louisville	(1912)	71
College of Physicians and Surgeons, Baltimore	(1912)	77
Leonard Medical School	(1911)	75
Eclectic Medical College, Cincinnati	(1910)	73
Starling Medical College	(1890)	65

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1891)	Virginia
Hering Medical College, Chicago	(1903)	Tennessee
Chicago College of Medicine and Surgery	(1910)	Illinois
University of Louisville	(1911)	Kentucky
Hospital College of Medicine, Louisville	(1885)	Ohio
University of Maryland	(1881)	Maryland
Eclectic Medical College, Cincinnati	(1910)	Kentucky
Cleveland University of Medicine and Surgery	(1894)	Ohio
University of Pittsburgh	(1905)	Illinois
Tennessee Medical College	(1907)	Kentucky
University of Virginia	(1910)	Virginia
Medical College of Virginia	(1909)	Virginia

* Official information from the college says this man is not a graduate.

The following questions were asked:

ANATOMY AND EMBRYOLOGY

1. Describe in detail the scapula. 2. What bones enter into the formation of the wrist joint? 3. Give origin and insertion of the biceps and triceps muscles. Give the origin and branches of the femoral artery. 5. Give origin, course and distribution of the vertebral arteries. 6. Describe the coverings of the brain. 7. Give the divisions of the spinal nerves and the number of each. 8. Name the anatomic divisions of the abdomen and describe the linea alba. 9. Describe the gall-bladder and name the bile ducts. 10. Describe the male urethra.

PHYSIOLOGY AND HISTOLOGY

1. Define a reflex action and name three reflexes of interest to the practitioner. 2. Give the general relations of the gray and white matter in the cord. How do we determine from what region any given section is taken? 3. Mention some important characteristics of the pulse in health and *disease*. 4. Give general description of the heart, defining its function. 5. Give the physiology of respiration. 6. Describe the pressure conditions in the *lungs and thorax and their* influence on the circulation. 7. Describe the digestion and absorption in the stomach. 8. What is urea and where found? 9. Give histological structure of the cornea. 10. Give the histology of the nasal mucous membrane.

BACTERIOLOGY AND HYGIENE

1. State the agencies by which the body protects itself against the entrance and bad *effects of pathogenic* bacteria. 2. State the products of bacteria. Give functions. 3. Define spirilla, bacilli. Illustrate. 4. N pathogenic diplococci. 5. Name the most comm ion in diphtheria. 6. State the chief sources of of drinking-water. 7. What precautions are *necessary* to insure healthy *sleep?* What gases accumulate in improperly ventilated sleeping-rooms? 8. How would you prepare an artificial food for a new-born infant? 9. Describe the effects of a cereal diet. 10. Give a proper diet in the case of diabetes mellitus.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. To what salts do most cathartic minerals owe their virtue? 2. What are *proteids?* Name one. 3. What pathologic conditions produce bile in urine? 4. Mention several tests for sugar. 5. Give chemical antidote for silver nitrate, mercury bichlorid, Tr. iodin. What is formed? 6. Define oxidation and where does it occur in the body? 7. How would you determine organic matter in water? 8. How do gunshot wounds differ from other wounds? 9. Give the distinguishing marks between ante-mortem and post-mortem wounds. 10. Differentiate between dementia and hysteria.

OBSTETRICS AND GYNECOLOGY

1. Give the dimensions of the female pelvis. 2. How would you treat a case of incomplete abortion? 3. Give the treatment of subinvolution of the uterus following labor. 4. Give the causes and treatment of puerperal septicemia. 5. Give some of the indications for version. How would you do it? 6. What is Credé's method of expelling the placenta? 7. Give the most common cause of pus tubes or pyosalpinx. 8. At what age does menstruation occur? Name some of the causes of delayed menstruation. 9. Name some of the causes of incontinence of urine in women. 10. Name the causes of dysmenorrhea and give treatment.

PRACTICE OF MEDICINE AND PEDIATRICS

1. In what cases would the ophthalmoscope aid in diagnosis? 2. Of what import is the spleen in the diagnosis of febrile conditions? Define splenic dulness. 3. Differentiate early pleurisy from intercostal neuralgia. 4. Make a diagnosis of aneurysm of the descending aorta. 5. Describe treatment of acute inflammatory articular rheumatism. 6. What diseases may cause occlusion of the common bile duct? 7. Differentiate the coma of opium poisoning from that of cerebral hemorrhage. 8. What treatment would you recommend for diphtheritic paralysis? 9. Give symptoms and treatment of whooping-cough. 10. Give symptoms, complications and *treatment of* mumps.

PRACTICE OF MEDICINE AND PEDIATRICS (ECLECTIC)

1. Give the etiology, diagnose and 2. Make diagnosis, outline treatment of diabetes mellitus. 3. Discuss acute ling common sequelae. Give treatment. iagnose and treat scarlet fever. 5. Give the symptoms, diagnose and treat *erysipelas.* 6. Define sciatica. Diagnose and treat. 7. Give the symptoms, diagnose and treat lobar pneumonia. 8. Diagnose and treat incipient pulmonary tuberculosis. 9. Define poliomyelitis. Diagnose and treat. 10. Define cerebrospinal meningitis. Diagnose and treat.

SPECIAL MEDICINE

1. Discuss heart murmurs. functional. 2. Define dyspnea. Discuss va 3. Diagnose and treat frontal sinus and treat diphtheria of the nasal passages. 5. Diagnose and treat tuberculosis of the larynx. 6. Discuss aphonia. 7. Define *diplopia*, ptosis. Give etiology, diagnose and treat. 8. Define glaucoma. Diagnose and treat. 9. Give the etiology, diagnose and treat *poliomyelitis.* 10. Give the etiology, diagnose and treat chorea.

SURGERY

1. Classify tumors and give the theories concerning their origin. 2. *Discuss the indications for drainage and describe* two drains in common use. 3. Give the *early* symptoms of *carcinoma of the* stomach and describe in detail one of the laboratory tests which is helpful in the diagnosis of the same. 4. Describe *ligation of the* middle meningeal artery near its point of bifurcation, including *the topography* on the exterior of the skull. 5. State the ways in which a fracture of the olecranon process is produced and give *its symptoms* and treatment. 6. Give the symptoms of the most common dislocation of the hip joint and *describe one* method of treatment by manipulation. 7. Describe in detail an amputation of a finger at the metacarpophalang Discuss the etiology of peritonitis. 9. *Give the* diagnosis and details of surgical treatme emoral hernia. 10. Define Fowler's position, sition, meningocele, *appendicectomy, choledochotomy,* talipes equino-valgus, aneurismal varix, *pylephlebitis,* ranula, *hypospadias.*

MATERIA MEDICA AND THERAPEUTICS

1. Convert liter, gram and c.c. into weights and measure ordinarily used in *U. S.* Army. 2. Write a *prescription* containing four *remedial agents.* 3. What is normal blood-pressure? Name two drugs that increase it. 4. *Enteroclysis; hypodermoclysis;* describe them. 5. Tr. nux vomica; give dose and per cent. of strychnia it contains. 6. *Iodin;* give therapy. 7. Air and sunshine; give

therapy. 8. Iron; give therapy. 9. Digestive ferments; name principal ones and give therapy. 10. Mineral acids; give therapy.

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1. Give properties, dose and specific indications for digitalis, belladonna and gelsemium. 2. What is the source of quinine? Give dose and therapy. 3. Give therapeutic indications and dose of arsenous acid. 4. What is oleoresin aspidium? Give dose and therapy. 5. Discuss the therapeutic value of diaphoresis. What drugs and measures are most effective? 6. Write a prescription useful in the treatment of acute cystitis. 7. Discuss therapeutic measures of value in the treatment of arteriosclerosis. 8. What remedies are useful in the treatment of angina pectoris? 9. What measures would you use for the relief of hyperpyrexia? 10. What is an antitoxin? Name two and give dose of each.

Book Notices

MIND AND HEALTH. With an Examination of Some Systems of Divine Healing. By Edward E. Weaver, Ph.D., with an Introduction by G. Stanley Hall, Ph.D., LL.D., President of Clark University. Cloth. Price, $2 net. Pp. 500. New York: The Macmillan Company, 1913.

The material contained in this volume was originally prepared for a thesis for the degree of Doctor of Philosophy at Clark University, but, according to the author, it has been greatly elaborated since that time. His own words best set forth the object of the book, "The study of the influence of mental states upon health has now entered upon the stage of exact investigation, by both psychology and medicine. This treatise is an attempt to embody some of the latest results of the psychologic study of this important subject and to lay down the fundamental psychological principles governing health and promoting healing. Inasmuch as there is a strong tendency on the part of religious bodies to make non-medical healing a part of their work, and because this is done without a thorough knowledge of psychology or medicine, there is urgent need for the examination of this professed healing."

The proposition which the writer has undertaken to demonstrate is that the treatment and cure of disease, or at least of a certain class of disease, is a proper function of religious organizations. Dr. G. Stanley Hall in the introduction says, "I see no reason why religion, which in past ages has always exerted such a profound influence on all matters of health and disease, cannot rehabilitate for itself from the material herein described its old function of healing, which, when it is complete, will have a profound significance on the future fate and function of the church."

With all possible sympathy for the author and his efforts, the impartial reader is forced to admit that the book falls short both of its possibilities and of the ambitions of the writer. It is apparent throughout that the writer, however conversant he may be with psychology, is not familiar with modern scientific medicine. This is shown in the quotation from the preface given above, in which is found the old and inaccurate distinction between medical and non-medical healing, the author apparently assuming that the field of modern medicine in the treatment of disease is limited to the use of drugs. The attitude of the author toward the instances of healing which he narrates is one of credulity rather than of scientific discrimination, while his apparent confidence in testimonials and *ex parte* statements shows a lack of appreciation of the relative value of evidence. It is also noteworthy that in citing authorities on psychotherapy he too often refers to the most demonstrative rather than to the most authoritative writers in this field. The reasoning in many cases is of the *post hoc, ergo propter hoc* variety, found in all sectarian literature. The cases referred to in the introduction are of the old familiar type. A woman is suddenly stricken with a mysterious malady. The physicians in the case "have given her up." The patient is said to be "entirely beyond the reach of medical science." These are the usual formulas for such cases. The healer or the minister or the aged father prays for her recovery. The woman recovers. Therefore, she was healed by prayer. It is hardly necessary to point out the many fallacies in this line of argument.

Mr. Weaver would have written a better book if he had confined his efforts to the history of the various mental-healing movements, on which subject he is clear, concise and interesting. But when he attempts to formulate general principles he gets into deep water. No one familiar with modern psychotherapy will agree with him that "the practical handling of psychotherapeutic principles runs precisely parallel to the terms of the gospel evangel, and to-day science is affording us the wondrous spectacle that in order to free ourselves of disease we must employ the same means that we have been led to employ in the past to become free from sin." The loose reasoning here is equaled only by its loose diction.

The principal "religious systems" considered are Christian Science, the Emmanuel movement, Dowieism, and metaphysical healing. If the author had gone more deeply into the history of medicine, and if he were familiar with the "miracles" which are a part of all religious and emotional movements, as well as such strange chapters in human experience as mesmerism, Perkins tractors, the earlier days of electricity, the belief in the miraculous power of kings and other exalted personages to cure diseases by the laying on of hands, he would realize that the phenomena which he regards as associated with religion are in fact to be found as an accompaniment of any popular movement or belief in which are found the elements of ignorance, credulity, superstition, mystery and compelling personality. He would also perhaps learn something of the value of human testimony and would discriminate more carefully as to his witnesses.

Mr. Weaver's book may be read with much profit by one desiring facts as to the different mental-healing sects. It is necessary, however, to discriminate carefully between the writer's statements of fact and his elaboration of theory. Its publication as a thesis by a fellow of Clark University and its introduction by Dr. G. Stanley Hall gives it a weight and an importance which makes careful criticism of its conclusions all the more necessary.

IRRITABILITY. A Physiologic Analysis of the General Effect of Stimuli in Living Substance. By Max Verworn, M.D., Ph.D., Professor at Bonn Physiological Institute. Cloth. Price, $3.50 net. Pp. 264, with 63 illustrations. New Haven: Yale University Press, 1913.

This volume comprises the eighth series of Silliman lectures, delivered at Yale University in 1911-1912. In this series of nine lectures the author endeavors to "show what information the analysis of irritability and of the effect of stimuli can give us of the nature of the processes in living substances." The historical development of the modern conception of irritability is outlined in the first lecture. Of special interest to the physician is the important contribution to the conception of irritability by Virchow in establishing the cell doctrine in pathology and medicine, with its corollary that "disease must be considered as a reaction of body-cells to stimuli." The subjects treated in the final chapter are the general effects of stimuli, the nature of the excitation processes, conduction of the excitation processes, the nature of fatigue, inhibition and narcosis.

Verworn is a recognized authority in the field of general physiology, and the volume is an interesting, and, on the whole, fairly complete digest of recent investigations in this field. It is but natural that he should give special prominence to work from his own laboratory and by his own pupils. Many scientists, however, will question his view that "the modern scientific conception of cause does not originate from experience, but is the remains of a part of the old anthropomorphic mysticism carried over into our own times" (page 20). Few physiologists will admit that Verworn makes out a strong case for his view that "fatigue is an extension of the refractory period." Yet the book will interest both the clinician and the laboratory man. Neurologists will be particularly interested in the evidence cited for the existence of the all-or-none law in nerve fibers; that is, that there is no such thing as nervous impulses of varying strengths in the same axis cylinder. If this contention of Gotch and of Verworn shall finally prove true we must greatly modify our present conception of the mechanism involved in weak and in strong voluntary movements in the same individual.

We are glad to be able to say that our leading American pathologists recognized long ago that "disease is life under altered vital conditions and altered vital conditions are stimuli —the pathologist who does not wish to confine his observations to purely superficial symptomatology must seek to penetrate into the nature of the general reactions to stimulation in living organisms. In this field we expect much from pathologic *investigation, which* alone has abundant material at its command. But this will take place only when pathology adds to the histologic direction of the investigation that of experimental physiology" (page 72).

ABWEHRFERMENTE DES TIERISCHEN ORGANISMUS GEGEN KÖRPER,- BLUTPLASMA- UND ZELLENFREMDE STOFFE, IHR NACHWEIS UND IHRE DIAGNOSTISCHE BEDEUTUNG ZUR PRÜFUNG DER FUNKTION DER EINZELNEN ORGANE. Von Emil Abderhalden, Direktor des Physiologischen Institutes der Universität zu Halle a.S. Second Edition. Paper. Price, 5.60 marks. Pp. 199, with 12 illustrations. Berlin: Julius Springer, 1913.

This is the second edition of the *monograph* issued a short time ago under the title of "Schutzfermente," the new title *being selected in deference to the fact that* the defensive action of the *enzymes concerned* in reaction to foreign substances does not invariably lead to a complete protection, as might be implied by the title "Schutzfermente." The value of this monograph lies in the fact that it represents a study of the fundamental processes of immunity from the standpoint of a *progressive*, biological chemist. As *nearly all the work* that has been done in this field, which is *essentially* chemical, has been accomplished by bacteriologists and pathologists who have had but slight appreciation of the *chemical* aspects of their work, it is not strange that a *chemist* finds many possibilities which his predecessors have overlooked. Professor Abderhalden is unusually gifted in his *presentation* of scientific work to general readers, and this book, like all his other writings, is interesting reading. The medical man who wishes to keep in touch with the *advances* of immunity will find profit and pleasure in Professor Abderhalden's latest summary of his work and ideas in this field.

IONIC MEDICATION. The Principles of the Method and an Account of Clinical Results Obtained. By H. Lewis Jones, M.D., Consulting Medical Officer to Electrical Department in St. Bartholomew's Hospital. Cloth. Price, $1.50 *net*. *Pp.* 151. Philadelphia: P. Blakiston's Son & Co., 1913.

This little book gives an *unexaggerated, scientific* statement of the principles and of the practice of ionic medication, and, unlike so many books, *it has a* reason for existence, for it is practically the only book on the subject. Ionic medication has a field of usefulness and the book is recommended as worthy of study.

HYSTERIE. Zur Frage über die Entstehung hysterischer Symptome. Von Dr. J. M. Raimist, Leiter der Nervenabteilung des Jüdischen Hospitals in Odessa. Paper. 3.50 marks. Pp. 101. Berlin: S. Karger, 1913.

This is a dissertation on the origin of hysteric symptoms, based on a few cases as observed by the author. No new message will be found here, but a reiteration of what many have long contended, namely, that hysteria is an emotional disorder causing physical symptoms. That *symptoms often* disappear when the patient's attention is diverted from his malady has also been known for ages.

UEBER HALLUZINOSEN DER SYPHILITIKER. Von Privatdozent Dr. Felix Plaut, Wissenschaftlichem Assistenten der Psychiatrischen Universitätsklinik in München. Paper. *Price* 5.60 marks. Pp. 116. *Berlin: Julius* Springer, 1913.

In this interesting monograph the author makes an attempt to differentiate a certain type of hallucinatory psychosis occurring in syphilis of the nervous system from general paresis and the tabetic psychoses. He makes use of the new laboratory aids (1) Wassermann in blood, (2) Wassermann in cerebrospinal fluid with *increasing quantities*, according to Nonne-Hauptmann, (3) lymphocyte count, and (4) Nonne's globulin test. Having observed clinically, over long periods of time, cases that gave positive laboratory reactions of syphilis of the nervous system, but not the clinical signs of general paresis, tabetic psychosis or alcoholic paranoia, he concluded that the mental disturbances, chiefly of a hallucinatory character, belong to syphilis proper. He cautiously advances the view that such hallucinatory disturbances might be caused by the syphilitic poison in the same way as the gross physical lesions. The monograph is very suggestive; the histories are complete and the conclusions quite conservative. Perhaps one of the most instructive portions of the book is that in which the new laboratory aids in the diagnosis of brain syphilis are discussed.

Medicolegal

Manslaughter Is Such Neglect of Infant as to Cause Its Death —Duty of Poor Person as to Procuring Medical Aid for Child or Stepchild

(Stehr vs. State (Neb.), 139 N. W. R. 676)

The Supreme Court of Nebraska affirms a conviction of the defendant Stehr of manslaughter by negligently causing the death of his stepson, a child about 4 years of age, for which he *was* sentenced to the penitentiary for a term of from one to *ten years*. The court says that it appeared that the child, called "Kaurt," was to some extent *afflicted* with bed-wetting; that one very cold night, after a day of "blizzard," the defendant *allowed the fire to go out altogether*, although he had a small supply of coal; and, sometime during the night, he discovered that Kaurt had wet the bed; that the bedding was frozen stiff, and that the room was full of frost; that snow had drifted through the crack of the door, and through a broken window-pane, and the bedding on all of their beds was frozen stiff. Notwithstanding this *situation, the defendant* built no fire, and, as stated by him, he turned the bed-tick over on which Kaurt slept, and again placed the child in the bed alone, where he lay until the next morning. Shortly after this, and as early as the fifth day *following*, it was discovered that the child's feet had been frozen, and had begun to show signs of discoloration. Mrs. Stehr stated that the child's feet looked gray and somewhat green in spots. The defendant thereupon applied hot water and dressed the feet with cloths saturated with *petrolatum*. No physician was consulted or called until the sixteenth day after the freezing, at which time the child's feet were so badly decomposed that the stench arising *therefrom* had become unbearable. The defendant's wife then went to a merchant, with whom *they were trading*, and inquired for a German *doctor*. One was recommended, and he called to see the *child, but declined* the case because the defendant had *no money*. *Another* German physician was called, *who on* the same evening visited the child and also declined the case, but recommended that the city physician be notified of the situation. On the *following* day the city physician, who was a skilful surgeon, called *at the defendant's* house, examined the child, found a gangrenous condition of its feet, and informed the defendant that amputation was absolutely necessary. Meanwhile one of the county commissioners, who was active in securing assistance for the poor, furnished *the defendant with a supply of coal and other* necessaries, and arranged for the amputation. The child was taken to the home of a *professional* nurse, and on the following day the operation was performed and everything possible was done for the relief of the child. It was found, however, that sepsis or blood-poisoning had developed to such an alarming extent that a recovery was *impossible*, and on the twenty-second day after the freezing the child died.

The court says that it must be observed that the question actually submitted to the jury was whether or not the defendant was criminally negligent in failing to provide medical care for his stepson after he discovered the frozen condition of the child's feet. It was contended that the defendant was an ignorant German, unable to speak *the language* of this country, was without means to procure medical assistance, and therefore was not responsible for his neglect. The evidence showed, however, that he was a fairly intelligent man: that he was surrounded by his friends and neighbors, all of whom could speak both German and English; that he failed *to mention the child's* condition, or inform them of his necessities. His own testimony showed that for ten or eleven days he saw the child's feet turn from gray to purple, from blue to green and black, and saw its flesh rotting and dropping away, yet made no effort to procure medical aid until the odor of the rotting flesh became unbearable. It seems idle to assert that he was so ignorant as not to realize the necessity for calling a physician.

The degree of negligence in such a case that would make a man criminally responsible can hardly be defined. It is not a slight failure in duty that would render him criminally negligent; but a great failure of duty undoubtedly would. The line between the two extremes is hard to define, and is a question that must be left to a great extent in each individual case to the common sense of the trial jury. It is for them to determine whether or not the degree of failure of duty is in fact criminal. As the court views the evidence, the jury had a sufficient basis for finding the defendant guilty of such criminal negligence as would amount to manslaughter.

The defendant was charged with the legal duty of seeing to it that the child's life was not endangered. If he realized the condition of the boy's feet and for ten days failed to call a physician, or if he negligently refused to ascertain the condition of the boy's feet in time to call a physician, then the jury would be justified in finding him guilty of criminal negligence.

For a parent having special charge of an infant child so culpably to neglect it that death ensues as a consequence of such neglect is manslaughter, although death or grievous bodily harm was not intended. If the parent has not the means for the child's nurture, it is his duty to apply to the public authorities for relief, and failure to do so is itself culpable neglect, wherever there are public authorities capable of affording such relief.

Exclusion of Milk from City—Health Officer Not Liable—Power of Department of Health

(Bellows vs. Raynor (N. Y.), 101 N. E. R. 181)

The Court of Appeals of New York affirms a judgment dismissing the complaint in this case, brought by the plaintiff, who was engaged in dairy farming, to recover damages from the defendant, chief of the division of general sanitary inspection of the department of health of the city of New York, for having, as the plaintiff alleged, trespassed on his property rights. The plaintiff complained that the defendant had unlawfully and wrongfully stopped the delivery of the plaintiff's milk product to a creamery, ordering and directing the creamery company not to receive the milk. The court thinks that the plaintiff was properly nonsuited, for, if the plaintiff's complaint was in trespass, the evidence failed to show an unauthorized entry on his premises, either by the defendant, or by any agent. If, however, the alleged "trespass on the property rights of the plaintiff" consisted in causing the interruption in the sale of his milk product, then no cause of action was made out. If what the plaintiff intended was to charge an illegal exercise by the defendant of official power, or of the powers conferred on the board of health, no cause of action was established. The complaint did not allege that the defendant acted in excess of his authority as an officer of the department of health, nor that he acted in bad faith, or without due care, or maliciously, and therefore, in what he did as such officer, he was protected by the statute against the consequences. Acting as an officer of the department of health, in good faith, if the defendant's acts caused any loss to the plaintiff, the latter's exclusive remedy, on the ground of an illegal exercise of power, was by an action against the city.

The argument that the department of health of the city of New York exceeded its lawful powers "in assuming to regulate the method of the production of milk by the plaintiff, and in prohibiting the creamery company from including plaintiff's milk in its shipments," was unsound, as was the argument that the statute, if conferring such an authority, was invalid as delegating to the officers of the municipality jurisdiction over the affairs of another locality. The department of health of the city of New York is charged by law with the responsibility of preventing pestilence and disease in the city of New York. Its duty is to enforce all laws applicable to the preservation of human life and the promotion of health, and such as relate to the use or sale of unwholesome, deleterious or adulterated food. In the faithful and efficient performance of that duty, the whole state, as well as the city, is concerned, and the department must be deemed to possess whatever power is needed to make effective the express powers conferred. So broad is the responsibility with which the department of health is charged that it is to give all information in its possession, relating to the existence and cause of disease, to the local health authorities of any city, village, or town, which may request the same, and to "add thereto such useful suggestions" as experience may supply.

Of the food supplies introduced into the city of New York, milk is one of the most important. It is now a matter of common knowledge that, if infected, it carries with it the germs, or bacilli, of dangerous and epidemic diseases. It is the food of the infant, and it is an important element of the food of the adult. It may be infected as it comes from the cow, or it may be contaminated by reason of the insanitary conditions of the dairy. Whatever, therefore, the department of health may do toward preventing the introduction of milk into the city of New York, which its officers have reason to believe to be unwholesome and deleterious, is in the performance of a statutory duty.

It is unreasonable to say that the department of health, in exercising such a power, renders itself amenable to the charge of exercising an extraterritorial jurisdiction. In notifying the creamery company not to include the plaintiff's milk in its shipments to the city, it was acting for the protection of the inhabitants of the city of New York, and therefore for local interests. There was no interference with the plaintiff's conduct of his farm or business, except as he proposed to supply milk to the city of New York; there was simply an embargo laid on the introduction, within the city of New York, of any milk not produced by him under conditions specified by the department. It had the right to exact from all shippers of milk a compliance with such conditions as would reasonably tend to a pure product for the use of the citizens as a condition of permitting its sale in the city of New York.

Contract Not to Practice in Vicinity After Dissolution of Partnership Binding

(Glover vs. Shirley (Mo.), 155 S. W. R. 878)

The Kansas City Court of Appeals reverses a judgment rendered for the defendant in this action to enjoin him from the practice of medicine anywhere within a radius of 10 miles of a named town, directing that a decree be entered for the plaintiff restraining the defendant as prayed in the petition, and for normal damages. The court says that the plaintiff was an established physician in said town, and desired the assistance of a younger man. After some preliminary talk at different times, he and the defendant, also a physician, entered into a written contract which stated that they had entered into a partnership for the general practice of medicine and surgery at said place, and surrounding territory, said partnership to continue so long as mutually satisfactory and agreeable to both parties, and to be terminable at the will of either, said parties to share equally the expenses and the profits of the partnership, and, in the event of the partnership being, for any reason, dissolved, the defendant agreed not to practice medicine or surgery, for a period of ten years, either by himself or as a member of a partnership, in said town, or within a radius of 10 miles from said point.

At the expiration of several months this contract was dissolved, and their partnership accounts settled between them. The defendant then located himself in the town, and began the practice of medicine, and the plaintiff, as already said, brought this action to restrain him. The law justifies such action. "That contracts restraining the exercise of a trade or profession in particular localities are valid, when there is fair and reasonable ground for the restriction, as in the case of the sale of the good will of a trade or business, where the vendor covenants not to pursue the same business within certain limits, is beyond question." McClurg's Appeal, 58 Pa. 51. In *Gordon vs. Mansfield*, 84 Mo. App. 367, Smith, P. J., speaking for this court, made the observation that: "The doctrine had been at rest ever since Lord Kenyon declared in *Davis vs. Mason*, 5 T. R. 118, in which the bond of a surgeon not to practice within 10 miles of the place where the obligee lived was held good." And he further quoted Judge Scott's remark in *Presbury vs. Fisher*, 18 Mo. 50, that: "There is no practical man who would not smile at the conceit that the public welfare would sustain an injury by enforcing an obligation" which would prevent one from exercising a certain business in certain limits for a limited period.

There was no lack of consideration for the contract. The mutual obligations of a contract stand as a consideration for each other. It is proper to assume that the plaintiff would not have entered into the contract at all without incorporating the agreement not to practice in the named town.

Nor does it appear to the court that the mere failure to seek out the defendant and tell him he ought not to do what he agreed he would not do was sufficient to nullify the contract.

Laymen Mistaking Apoplexy for Drunkenness

(Middleton vs. Whitridge (N. Y.), 141 N. Y. Supp. 104)

The First Appellate Division of the Supreme Court of New York reverses a judgment rendered in favor of the plaintiff, as administratrix, against the defendant, as receiver of the Third Avenue Railroad Company, for damages for the death of one Lewis Middleton, a man aged 51, who had boarded a street-car, being kept on the car for five hours under the supposition that he was drunk, when, after he was finally taken to a hospital, his trouble was diagnosed as cerebral hemorrhage. The court says that it was conceded that the defendant was in no way responsible for the cerebral hemorrhage or stroke of apoplexy. It happened while Mr. Middleton was on the car, not because he was there; or on account of anything which occurred while there. The actionable negligence claimed, on which alone the judgment reversed rested, was the failure of the conductors, motormen, and starters of the street railroad company to properly diagnose his condition and promptly procure for him medical treatment and complete rest. The claim was that this neglect aggravated the condition, and accelerated the death, which might not otherwise have happened. This led to two inquiries. 1. Was there actionable negligence? 2. Was such alleged negligence the proximate cause of death?

While it is shocking to think that a man stricken with apoplexy should be carried around the city for five hours in an open street car, the question was: Did it follow that the defendant was responsible in money damages? It is established that, so far as external appearances are concerned, it is difficult to differentiate between intoxication and apoplexy. Even medical men and hospital officials make mistakes. Was it negligence, then, for the two motormen, two conductors, two starters, and an inspector to conclude that the man was under the influence of liquor, and not to discover that he had a stroke of apoplexy? It must be taken into consideration, also, that a policeman and two passengers came to the same conclusion, and that no passenger during all those five hours made any suggestion to the employees that the man was sick, rather than as he appeared.

The treatment by these employees of this unfortunate passenger, instead of being susceptible to the charge of gross brutality and inhumanity, seemed to have been actuated by a kindly and sympathetic feeling. Instead of being thrown off the car, he was allowed to remain where he had put himself, with the notion that it was the best thing for him; that he would sleep it off, and that he had better be in the open air.

No case holds a street railroad employee to the duty of correct medical diagnosis, and, when nothing is done to interfere with the passenger, holds the company responsible for an omission to call a physician or transport him to a hospital. The court thinks that actionable negligence was not made out.

It does not seem that the responsibility for this death was traced to the defendant with that degree of certainty which the law requires. It was not responsible for the cerebral hemorrhage. It was really but guesswork to say that prompt attention would have saved the life. The defendant's liability as the proximate cause of death was not satisfactorily established. Therefore, on both grounds, the plaintiff failed to make out a cause of action.

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

(Continued from page 1659)

SYMPOSIUM ON BONE DISEASES

Unusual Bone Lesions

Dr. A. Hartung, Chicago: I have seen three cases of osteitis fibrosa, two of them being of the deformans type, or Paget's disease. The roentgenogram is characteristic, showing a chronic inflammatory condition of the bony skeleton associated with a softening and overgrowth leading to deformities which are almost pathognomonic. There is a marked bowing and enlargement of the long bones, and hyperostosis and thickening of the flat bones. There is a coincident porosis and sclerosis, with areas resembling cyst formation. I have also seen a case of multiple bone cysts or osteitis fibrosa cysticus —von Recklinghausen's disease. These lesions are primary in the bone. Another type of bone lesion which is secondary to disease elsewhere in the body is hypertrophic osteoarthropathy of Marie. I have seen three cases of this type. There was a marked osteoperiostitis involving particularly the metacarpals and metatarsals. I cite these cases particularly to emphasize the fact that the roentgenogram furnishes an absolute means of diagnosis.

Chronic Typhoid Periostitis

Mr. H. W. Dachtler, Toledo, Ohio: There is such a condition as a typical typhoid periostitis and osteitis, which occurs late in the attack, or during convalescence. The periosteal inflammation is the most common; multiple lesions are frequent; bilateral involvement is not uncommon; the tibia is the bone most frequently involved. The bone changes are characterized not so much by the type of infection as by its virulence, and the condition may be confused with a syphilitic lesion unless the clinical history of the case is gone into carefully.

Roentgen Diagnosis of Bone Diseases

Dr. W. C. Hill, Cleveland: Roentgenoscopy is of particular value as a method of differential diagnosis in the various types of arthritis, exostoses, bone cysts, sarcoma, carcinoma, enchondroma, osteomyelitis, tuberculosis, syphilis and Charcot's disease. The roentgenogram is so characteristic as to be pathognomonic. Atrophic arthritis is characterized by atrophy of the articular cartilages and erosion of the bones; hypertrophic arthritis, by thickening and lipping of the articular surfaces. Usually there is a small hook on the patella when the knee is involved, and it is the joint most often involved. In infectious arthritis there is a slight rarefication of the bone, with sometimes marked destruction of the articular surfaces. Sarcoma gives a fuzzy appearance and when it breaks through the periosteum the surrounding soft tissues are seen to be involved. This is characteristic of sarcoma—the numerous lamellae and straggling filaments of bone. At a still later stage the entire bone becomes destroyed. Carcinoma produces a crater-like depression in the bone, the walls of which have a gnawed appearance. The surrounding bone appears absolutely normal. Bone cysts present a transparent cavity in the bone. They destroy the medulla, but never break through the cortex. In bone abscesses there is a surrounding envelope of ossifying periostitis, or eburnized bone.

Bone Syphilis

Dr. Percy Brown, Boston: The fusiform subperiosteal overgrowths, usually near the joint, are the most common findings in bone syphilis. Sometimes the so-called Codman "blister" is seen. It represents a small area in the bone in which the infection seems to be particularly severe, and the periosteum overlying it seems to be elevated or raised from the bone. I have called this the "pudding-stone" type of periosteal hyperplasia.

DISCUSSION ON SYMPOSIUM

Dr. P. M. Hickey, Detroit: We must guard against making a diagnosis of syphilis because the lesion might be one of the others mentioned. On the other hand, we should look for syphilitic bone manifestations, especially in obscure cases. We should not, however, base a diagnosis on the roentgenogram alone, unless we are absolutely sure of our ground. The stereoscopic method is the preferable one.

Dr. J. H. Edmonson, Birmingham, Ala.: I have found syphilitic bone disease when three Wassermann tests were negative. Antispecific treatment, potassium iodid and mercury, effected a cure.

Dr. F. H. Baetjer, Baltimore: The situation of the lesion will frequently help us. Carcinoma practically always starts in the bone where the nutrient artery enters. If the growth is elsewhere in the bone one can rule out carcinoma. In the non-malignant growths there is production of new bone, and it is symmetrical. The cortex is thinned out but intact. In the malignant growths the bone is destroyed, even the cortex. The non-malignant growths do not infiltrate the surrounding tissues, whereas the malignant growths do infiltrate. It is difficult to make a positive diagnosis of syphilis unless one or more bones are involved.

Fracture of Skull with Air in Ventricles

Dr. William H. Stewart, New York: A man sustained a fracture of the frontal bone in the region of the outer edge of the right frontal sinus. Later he had severe headaches, with occasional vomiting, and he became dull and listless. The neurologic diagnosis made at this time was "increased intracranial pressure, probably abscess." The ophthalmoscopic examination indicated a bilateral optic neuritis, also indicative of intracranial pressure. The leukocyte count was 15,900. The roentgenogram showed a dark circular shadow just back of the fracture. From the shape, location and course of this shadow, corresponding with the cerebral ventricles, the diagnosis of air in the cerebral ventricles was made. A needle was passed into the anterior horn of the lateral ventricle, and two or three quick spurts of air came from the needle when the obturator was removed. The patient died. It was subsequently learned that a severe pain in the head with a free discharge of fluid from the nose followed a violent blowing of the nose. The patient evidently established a communication between the nose through the right frontal sinus and anterior lobe of the brain into the right lateral ventricle, so that when he blew his nose he also inflated his cerebral ventricles.

DISCUSSION

Dr. Geo. E. Pfahler, Philadelphia: Dr. Pancoast and I had a patient referred to us who had become delirious apparently without cause. We roentgenoscoped the head and found an area of transparency in the left frontal region. We interpreted it at the time as a possible softening of the bone due to pressure. The patient got well in about six weeks, and further roentgenographic examinations failed to show this area. The history suggested sinus disease, but the sinuses were normal. We believe now that this was a case of air in the left ventricle.

Roentgenoscopy of Mediastinum

Dr. George F. Thomas, Cleveland: The symptoms that indicate mediastinal investigation are: (1) a feeling of oppression or sense of weight on the chest; (2) dyspnea; (3) dysphagia; (4) pain in mediastinum region possibly radiating to shoulders, arms, side of chest or upper abdomen; (5) tickling in throat, cough or desire to cough; (6) aphonia or hoarseness due to complete or partial paralysis of vocal cords; (7) enlargement of veins of face and neck; (8) unilateral flushing of face or unilateral dilatation of pupils; (9) tachycardia or bradycardia. The clinical history and physical examination may make the diagnosis. Roentgenoscopy always aids in doing so and may afford the only means for diagnosis. The position and shape of the mediastinum, the relation of the heart and great vessels, and anomalous shadows in the mediastinum are the points to bear in mind in making an interpretation of the roentgenogram.

DISCUSSION

Dr. George E. Pfahler, Philadelphia: There is danger of diagnosing beginning aneurysm in cases in which there is a projecting shadow in the region of the descending arch. In a case of that kind there was simply a tortuosity of the aorta causing clinical symptoms of aneurysm. This was confirmed at the necropsy. A fluoroscopic examination is of great value in these cases.

Dr. A. Howard Pirie, Montreal: Examining a patient with the fluoroscope and rotating him gives a stereoscopic effect on the screen, which is very valuable in an examination for aortic aneurysm.

Dr. William H. Stewart, New York: A dilated esophagus may cause mediastinum trouble and that may occur in case of carcinoma at the cardia. Cardiospasm must also be considered; likewise diverticulum.

Dr. F. H. Baetjer, Baltimore: Cardiospasm is closely associated with the position of the stomach. In every case of cardiospasm that I have seen there has been a distinct marked prolapse of the stomach.

Dr. L. T. LeWald, New York: I saw two cases recently in which there was marked prolapse of the stomach in conjunction with cardiospasm. In six cases I have seen a transposition of the heart, three within the past year.

Dr. Kennon Dunham, Cincinnati: The trachea is a landmark in all chest work. Its position will often help us to make a diagnosis.

Therapeutic Pneumothorax

Dr. Kennon Dunham, Cincinnati: I have made stereoscopic roentgenograms for the purpose of mapping out the extent and location of an artificial pneumothorax, and have found that they are far more reliable and accurate than the results of a physical examination. One can see the cavities becoming obliterated by successive injections of gas, and the position of the heart may be determined accurately. Therapeutic pneumothorax is a routine procedure in the Cincinnati Tuberculosis Hospital, but it is always safeguarded by stereoroentgenograms.

DISCUSSION

Dr. F. H. Baetjer, Baltimore: The great difficulty we have to contend with in producing artificial pneumothorax is pleural adhesions, so that in some cases it was almost impossible to get the lung sufficiently collapsed to be of permanent value. As to the formation of a hydropneumothorax, patients, as a rule, suffer little discomfort unless the fluid is excessive in amount.

Dr. L. T. LeWald, New York: Can you tell beforehand from the Roentgen findings whether or not it is going to be difficult to produce a pneumothorax?

Dr. Kennon Dunham, Cincinnati: Overfilling the pleural cavity is not only detrimental to the progress of the case, but dangerous to the life of the patient. There are two ways to judge that—by the clinical symptoms and by the roentgenogram. When there are no pleural adhesions there should be no difficulty. When they are present the gas will not flow in readily and only in limited amount. The accumulation of fluid is an important matter. I have not had it occur in my work until last August, when I saw two cases. The amount is usually slight and the roentgenogram will tell you whether it is of any significance. I have not been able to tell beforehand whether we could inject the gas or not. In four of our twenty cases we could not find any pleural space—and we tried many times and at intervals.

Roentgenotherapy of Raynaud's Disease

Dr. W. S. Newcomet, Philadelphia: I have had three cases of Raynaud's disease, in which roentgenization of the fingers was productive of good results. In the first case the tips of the fingers had ulcerated. Roentgenization was employed for a period of six months. The ulcers healed and the patient has since been free from pain. The ulcers have not recurred. The remaining two cases were similar to this one. The dosage in these cases was extremely mild, and the patients suffered discomfort and no sequelae.

Roentgen Diagnosis of Membranous Pericolitis

Dr. George H. Stover, Denver: In nine cases I have been able to diagnose roentgenographically a membranous pericolitis, the diagnosis being confirmed by operation. The picture seen was that of a malposition and deformity of the cecum, at times attended by more or less obstruction at the ileocecal junction, the latter also being characteristic of chronic appendicitis. The cecum does not change its position much through a series of plates. It is pulled inward from its usual position and is bent into the form of an arc with the convexity toward the right side of the body.

DISCUSSION

Dr. A. Hartung, Chicago: It might be possible to determine whether or not adhesions were binding the ascending colon to the transverse colon by changing the position of the patient.

Dr. George H. Stover, Denver: My patients were standing when the roentgenograms were made. I have also found that when there is a chronic irritation produced by an appendicitis, there is a lagging of the food in the terminal ileum—not due to an obstruction.

Roentgenoscopy in Diagnosis of Heart Lesions

Dr. W. J. Dodd and Dr. George C. Shattuck, Boston: In a series of cases the size and location of the heart and the lung margins by percussion was checked up by roentgenoscopy, and it was found that the former was far from being accurate; in fact, in none of the cases was it possible by physical means to make an accurate location. The roentgenogram showed that percussion had erred considerably, sometimes to the extent of an inch, in outlining the exact position of these viscera. The physical examination was made first and wires fastened to the chest wall to indicate the findings. Then the roentgenogram was made.

SYMPOSIUM ON GASTRO-INTESTINAL DISEASES

Roentgenoscopy of the Stomach

Dr. Lewis Gregory Cole, New York: I consider all localized areas of induration in the wall of the stomach, particularly those protruding into the lumen, as malignant. Serial roentgenograms are essential to a correct diagnosis. Small annular carcinomas that have not been recognized by fluoroscopy or single roentgenograms have been detected by a series of roentgenograms. A normal gastric secretion should not contra-indicate a thorough roentgenoscopy. Postpyloric ulcer is characterized by a constant deformity of the cap or pyloric sphincter caused by the induration or cicatricial contraction around the crater of an ulcer. In some instances the ulcer is viewed in profile; its indurated edges project into the intestinal lumen, and its crater is filled with bismuth. The puckering from cicatricial contraction may cause a deformity equally as great as the induration. Frequently, in addition to the deformity of the cap, there is a band of adhesion passing over on the gastric side of the sphincter, distorting the contour of the extreme pyloric end of the stomach. Not every deformity of the cap, however, is necessarily a postpyloric (duodenal) ulcer; it may be a spasm.

Roentgen Diagnosis of Duodenal Ulcer

Dr. Arial W. George, Boston: The exact method of diagnosing duodenal ulcer roentgenographically consists in demonstrating adequately the anatomic condition of the first portion of the duodenum. Ninety-five per cent. of duodenal ulcers occur in the first portion of the duodenum, and anatomically this part of the duodenum is a constant entity. It can always be demonstrated on the roentgenogram. A constant defect in the duodenal cap means a pathologic condition, such as ulcer, adhesions, cholecystitis, pressure of adjacent organs, and so forth. Any duodenal ulcer which is more than a simple mucous membrane erosion will deform the outline of the bismuth mass. A normal duodenal cap rules out indurated or surgical duodenal ulcer. We have been able to make a positive or absolute negative diagnosis.

The Stomach as a Reflex Organ

Dr. A. W. Crane, Kalamazoo, Mich.: The reactions of the stomach to reflex influences from without are manifested by cardiospasm, pylorospasm, hour-glass contraction, increased and decreased peristalsis, change in outline or position of pyloric antrum, and alterations in the character and quantity of the gastric juice. Gastric ulcer and duodenal ulcer are natural sequences. Roentgenologists must be careful to differentiate between true organic disease of the stomach and disease located outside of the stomach, manifested reflexly. Reflex stomach disturbances continued long enough finally give rise to actual organic stomach disease.

Indications Afforded by Roentgenoscopy For and Against Operations on the Stomach

Dr. A. Howard Pirie, Montreal: Chronic gastric ulcer, hour-glass stomach, gastric carcinoma, pyloric stenosis, caused by duodenal ulcer or carcinoma, gastroptosis, tumors pressing on and distorting the stomach, foreign bodies in the stomach and stenosis of the cardiac opening can definitely be recognized roentgenographically. Each condition gives a characteristic appearance on the roentgenogram. With reference to gastro-enterostomy, I examined about a dozen dogs and cats on which experimental gastro-enterostomy had been done. I found that when the operation was performed without closing the pylorus it was not a success; that it was a success when the pylorus was closed and the new opening was made near the pylorus; that it was not a success when the pylorus was closed and the new opening was in the cardiac end of the stomach. The rate of exit of food through a gastro-enterostomy opening is variable. It may pour through the stomach, so that gastric digestion is impossible. When the opening is at a considerable distance from the pylorus, residual food remains in the stomach between the pylorus and the opening. The indented appearance of carcinoma is so characteristic that one should be able to find it in very early cases. When barium remains more than six hours in the stomach, it is usually due to pyloric obstruction. Stenosis caused by carcinoma is usually evidenced by characteristic, finger-like indentations. When due to duodenal ulcer, typical changes are noted in the first part of the duodenum. Adhesions affecting the stomach can be recognized directly and indirectly. The normal stomach may show certain anomalies against which we must be on guard. Besides finding indications for and against operation by means of roentgenoscopy, we are at times justified in recommending medical treatment.

Discussion on Gastro-Intestinal Diseases

Dr. James T. Case, Battle Creek, Mich.: These patients should be examined with the fluoroscope as well as with the roentgenograph. The duodenal cap can be shown fluoroscopically in a great majority of cases. Its mobility during inspiration and expiration can be shown, and its relation to the definite pain point on pressure can be ascertained in a large number of cases. I have seen the appendix fluoroscopically in over three hundred individuals. I have also seen the appendix of this number of individuals in the roentgenogram.

The structures in the pyloroduodenal region can also be shown. I have seen a number of cases of hour-glass stomach due to penetrating ulcer on the lesser curvature, when the patient had had a gastro-enterostomy.

DR. GEORGE H. STOVER, Denver: Surgeons often fail to confirm our diagnosis because their fingers cannot feel what the roentgenogram shows. I have found in a number of cases that a chronic appendicitis will produce a spasm of the stomach.

DR. F. B. BAETJER, Baltimore: When the bismuth meal or food strikes the ulcer in the stomach or duodenum, it sets up contractions or peristaltic waves. The pylorus closes and the stomach contents are retained in that viscus. In the duodenum the same thing takes place, with the exception that there is not the spastic condition of the pylorus. I mean recent ulcers with no obstructive lesions. When the bismuth passes the pylorus and strikes the ulcer in the duodenum the irritation is set up, and there is a hypermotility of the duodenum, with rapid evacuation of its contents.

DR. ARTHUR F. HOLDING, New York: Serial roentgenograms are expensive, but the method is accurate, more so than fluoroscopy, because the sensitized plate is more sensitive to impressions than the retina of the eye. Objection has been raised to the expense of this method. In many cases a diagnosis cannot be made in any other way.

DR. GEORGE C. JOHNSTON, Pittsburgh: The combined method is the one that eventually will enjoy the most repute. We ought to be able to make a diagnosis of ulcer before the ulcer is formed, that is, when there is merely an irritation of the mucosa which gives rise to a change in the physiologic cycle of the stomach. This condition can be recognized with the fluoroscope.

DR. A. HARTUNG, Chicago: I had a case in which the roentgenograms showed a well-marked stenosis of the pylorus. The surgeon operated, but found nothing on macroscopic examination or palpation of the external wall of the stomach. He opened the stomach and then saw a benign annular growth near the pylorus. He did a gastro-enterostomy and the patient recovered.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

October, CXLVI, No. 4, pp. 469-624

1 Influence of Skeletal Defects, Congenital and Acquired, on Body in Health and Disease. C. F. Painter, Boston.
2 *Value of Roentgenoscopy in Diagnosis of Ulcer of Stomach and Duodenum. J. Friedenwald and F. H. Baetjer, Baltimore.
3 *Present Situation in Syphilis. W. A. Pusey.
4 *Heart in Syphilis. H. Brooks, New York.
5 *Syphilis in Etiology of Fibrous Osteitis. P. G. Skillern, Philadelphia.
6 *Case of Strychnin Poisoning. A. W. Hewlett, Ann Arbor, Mich.
7 *Insufficiency of Pulmonary Valve. H. B. Allyn, Philadelphia.
8 Training of Students in Internal Medicine at German Universities. M. Matthes, Marburg, Germany.
9 Normal Coagulation of Blood, with Description of Instrument Used. G. M. Dorrance, Philadelphia.
10 *Chronic Ulcer of Pylorus (Duodenal and Gastric). G. P. LaRoque, Richmond, Va.

2. Ulcer of Stomach and Duodenum.—Twenty patients were first studied clinically by Friedenwald, and then without any note being given as to the nature of the disorder, were referred to Baetjer for Roentgen examinations. The two reports were then placed side by side, and the clinical and Roentgen diagnoses corresponded so closely in every instance as to make the results appear most striking. The authors' general conclusions in reference to duodenal ulcer are these: There is excessive hypermotility of the stomach, with rapid emptying of contents, so that the greater portion of the stomach contents is emptied within the first half hour, the stomach contraction being practically normal and there is no evidence of hour-glass formation. There is hypermotility of the duodenum, with formation of a vacant area which remains fixed in all the examinations. The presence of a duodenal ulcer in simple cases uncomplicated by adhesions can practically always be determined. In gastric ulcer the question of the normal motility of the stomach is still open to debate, as evidenced by the fact that various authorities have given from two to six hours as being a normal period for expulsion of the bismuth contents.

At present it seems to Friedenwald and Baetjer that the gastric ulcer can be diagnosticated in certain situations only. From the roentgenographic standpoint one is able to see practically only one surface of the stomach and a portion of the greater and lesser curvatures. Should the ulcer be situated on the posterior surface of the stomach near the lesser curvature, it is not visible because the bismuth contents of the stomach completely obscures that side; consequently we are unable to see any alterations or irregularities of the peristaltic waves. It is only when the lesion is situated on the anterior surface of the stomach, and along the anterior surface of the lesser and greater curvature, that we can come to any conclusion. If the lesion is on the lesser curvature close to the pylorus, by making repeated examinations of the stomach we are able to see irregularities in the peristaltic waves, due to the induration and partial fixation of the ulcer. The diagnosis between gastric and duodenal ulcer from clinical signs alone is often very difficult, and many clinicians consider it impossible in many instances to differentiate between the two. The roentgenoscopic findings of the two conditions differ, however, so markedly that this method affords an almost positive means of differentiation.

3. Present Situation in Syphilis.—Pusey summarizes his paper as follows:

> 1. Salvarsan has real dangers; they are remote, but, when they occur, serious. 2. As far as can be deduced from our present knowledge there is no reason to believe that salvarsan will lessen the occurrence of parasyphilitic nervous affections, and some ground for fear that it may predispose to them, except in those cases in which it cures the disease. 3. It is a powerful symptomatic remedy. 4. In cases in which vigorous treatment is begun before the generalization of the disease there is strong ground for believing that syphilis can be aborted. This possibly applies to a few early cases with secondaries. 5. In all other cases in the secondary period its "curative" use may do more harm than good.

4. Heart in Syphilis.—Serious involvement of the heart Brooks has found to be frequent in syphilis. Epicardium, endocardium or myocardium or all together may be diseased. Cardiac involvement, he says, may develop early in the infection, though its symptoms may not be apparent until late. The signs and symptoms are those of cardiac disorder, and little or nothing except the history, general aspects and the Wassermann reaction may indicate the true etiology. Treatment should be first along indicated circulatory lines, secondary as to time, but most productive and important of all, it must be specific. Good results, cures in many instances, will follow appropriate antisyphilitic treatment. Brooks insists that the special method of treatment should be individual, but both mercury and salvarsan are efficacious in the condition; usually they are preferably combined; in some instances the former, in others the latter acts best. Iodin is an efficient adjuvant in at least some instances. Treatment should be continued until a permanent negative Wassermann is attained. Subsequent to this the management of the case should be along circulatory, not luetic lines.

5. Syphilis in Etiology of Fibrous Osteitis.—Fibrous osteitis, in some cases at least, in Skillern's opinion, is identical with late hereditary syphilis of bone. He urges that the connection of syphilis with this and other bone diseases of obscure etiology should be thoroughly worked out with the great aid now afforded by the Wassermann reaction. The disease is curable by conservative measures, and may be struck off from the fast-shrinking list of bone diseases requiring amputation.

6. Case of Strychnin Poisoning.—The case cited by Hewlett is noteworthy because of the amount of strychnin taken (15 grains). The fatal dose is commonly stated to be ½ to 1¼ grains, although according to Gadamer it is considerably higher (2 to 6 grains). Over 1 3/5 grains were recovered from the urine. The recovery of the patient was due in part to the presence of food in the stomach, which retarded the passage of the poison into the intestines and in part to the prompt emptying of the stomach at the onset of symptoms; 4½ grains were obtained from the first stomach washings, but unfortunately, the later washings were not analyzed. The case is interesting on account of the attempt to determine quantitatively the amount of strychnin excreted in the urine and the rate of excretion. During the earlier stages of the poisoning the amount of urine was diminished. At best not more than 23 c.c. per hour were excreted during this period, and it seems probable that very little urine was formed uring the acute symptoms. The marked increase in the cond portion of urine (58 c.c. per hour) Hewlett believes was due mainly to the improved renal circulation, for the salt *solution enema given forty minutes* before this urine was obtained could hardly have been solely accountable for the considerable quantity of urine. The subsequent flood of urine was evidently due *in* part to the enemata and in part to the improved renal circulation.

During the acute stages of the poisoning very little strychnin was excreted, only 1 milligram having been obtained from the urine passed five hours after taking the strychnin. Had the patient died within two hours Hewlett says still smaller amounts, probably only traces, would have been recovered from the urine. Following this period the excretion of strychnin increased rapidly, the maximum being reached in ten hours when 49 milligrams were excreted, an average of almost 1 milligram per hour. During the second day no analyses were made. On the third day a distinct trace was obtained, and on the fourth a faint trace. On the fifth day no strychnin was obtained. Altogether, about 96 milligrams (1 3/5 grains) were recovered from the urine. The analyses are noteworthy in showing (1) how little strychnin was excreted during the most acute stage of the poisoning; (2) that the major amount was excreted within twenty-four hours, and (3) that the excretion was not completed for three or four days.

7. **Insufficiency of Pulmonary Valve.**—The chief points in the diagnosis of pulmonary insufficiency are its frequent association with mitral obstruction, the diastolic murmur along the left edge of the sternum from the second interspace downward, the occurrence of marked pulmonary symptoms, with cyanosis, and the special phenomena pointed out by Gerhardt and Bamberger. Allyn believes that it is probable that relative pulmonary insufficiency occurs more frequently than we are wont to believe. Cases have been reported by Graham Steel, Gibson and more recently by Rudolph. He also regards it as not unlikely that in some of the cases of aortic insufficiency in which the diastolic murmur is heard best in the third and fourth interspace to the left of the sternum, that the explanation may be an associated pulmonary insufficiency, usually of relative character.

10. **Chronic Ulcer of Pylorus.**—The actual pathology of pyloric ulcer in La Roque's opinion is that of central necrosis of an area of inflammation, the necrosis resulting from capillary and arterial blocking by hyperplastic connective tissue and inflammatory exudate. The exciting cause of the inflammation causing the necrosis is bacterial infection. The original source of the bacteria is from some focus of inflammation in that part of the body drained by the portal vein, namely, the small intestine, appendix, cecum, colon, sigmoid, upper part of the rectum, liver, bile tract, pancreas and finally the stomach itself. The bacteria are carried to the liver through the portal vein. They are eliminated in the bile after being filtered through the liver. The infection is deposited by the bile into the proximal duodenum or according to the new nomenclature, *pyloric fundus, sac, or chamber.*

The clinical phenomena of pyloric spasm are dependent on the pathology of duodenal pyloritis. Pyloritis, pyloric ulcer, bile-tract infection, pancreatitis, and perhaps cirrhosis of the liver are late results of infection primarily located most commonly in the appendix, though in many cases in some other region drained by the portal vein; and these lesions frequently exist together in the same patient at the same time or may follow each other in rapid or slow succession. Finally, La Roque claims that the cause of pyloric ulcer (inflammation) is probably always primarily located on the duodenal side, and that so-called gastric ulcers are a result of extension of infection from the duodenal, through the lymph vessels in the wall of the pylorus to the gastric side.

Annals of Surgery, Philadelphia

October, LVIII, No. 4, pp. 433-576

11 *Treatment of Tuberculous Cervical Lymphadenitis. G. P. Müller, Philadelphia.
12 *Case of Excessive Thickening of Thiersch Grafts Caused by Component of Scarlet Red (Amidoazotoluol.) J. S. Davis, Baltimore.
13 Embolism and Thrombosis of Superior Mesenteric Artery. L. Noland *and* F. C. Watson, Cristobal, Canal Zone.
14 Cause and Treatment of Certain Unfavorable After-Effects of Gastro-Enterostomy. A. F. Hertz, *London.*
15 Rectus Transplantation for Deficiency of Internal Oblique Muscle, in Certain Cases of Inguinal Hernia. W. S. Schley, New York.
16 Recurrence of Inguinal Hernia. A. J. Hull, London.
17 *Contracture of Psoas Parvus Muscle Simulating Appendicitis: Report of Cases. G. R. White, Savannah, Ga.
18 *Reduction of Fragments Preliminary* to Internal Splintage in Cases of Fracture of Long Bones. G. H. Colt, Aberdeen. Scotland.
19 Fractures Through Trochanters of Femur. A. P. C. Ashhurst, Philadelphia.
20 Simultaneous Fracture of Both Patellae. C. R. Steinke, Philadelphia.
21 Uncomplicated Fractures of Tarsal Scaphoid. A. E. Horwitz, St. Louis.
22 *Cyst of Fifth* Metacarpal Bone. J. R. McDill, Milwaukee.
23 Direct Suture of Brachial Artery Following Rupture, Result of Traumatism. J. G. Sherrill, Louisville, Ky.
24 Suction Tip for Aspiration in Abdominal Operations. E. H. Pool, New York.

11. **Tuberculous Cervical Lymphadenitis.**—After a careful history has been obtained and an examination made, Müller says, the portal of entry can usually be surmised and if necessary the tonsil, adenoid or carious tooth should be removed, or any ulcer, scab, pediculosis, otitis, etc., attended to. In those cases seen early with only a small area involved and in which the child is in good general health, an operation should be advised. If the social position permits, this dissection should be confined to the macroscopic group with a minimum scar and the child sent to the seashore and kept from school for one year; the general and hygienic details of treatment being carried out with scrupulous care. In the case of the poor child or where such cannot be carried out, Müller thinks the entire submaxillary and cervical chains above the omohyoid should be excised. The general treatment must then be carried out at home. If the case is seen late with one or both sides choked up, the Roentgen ray is often of advantage in reducing the hyperplasia and a radical dissection can be carried out at an opportune time. If caseous abscesses, sinuses, etc., exist they should be opened up, curetted out and an effort made to thoroughly clean up the tuberculous granulation tissue after which the Roentgen ray is often invaluable in promoting healing.

Müller prefers the transverse incision whenever possible, especially for the submaxillary and upper part of the deep cervical. When the mass has crossed posteriorly beneath the muscle or involved the posterior superficial cervical chain, an oblique incision from the posterior edge of the mastoid along the posterior edge of the muscle to just below its middle *and then prolonged* transversely to the thyroid muscles will give a large field area. Finally, intratracheal insufflation anesthesia offers immense advantages in difficult cases, although pharyngeal insufflation anesthesia suffices for the easy ones. At all times it is important to keep in mind that we are "not only treating a case of tuberculous glands, but are dealing with a human being infected with tuberculosis. The difference between the two points of view is enormous, and the success will largely depend on the one chosen by the physician" (Hawes).

12. **Thickening of Thiersch Grafts.**—The epithelium of Davis' patient seemed to be particularly responsive to the stimulation of amidoazotoluol, and these thickened grafts present the most remarkable condition of overgrowth which has

come under his observation. Thiersch grafts which were subsequently applied to unhealed portions of the same wound, under exactly the same conditions, but without being dressed with amidoazotoluol, were not thickened. There was also great thickening of the deep pinch grafts placed on the undisturbed granulations of an ulcer on the scalp, which had been treated with amidoazotoluol before and after the application of the grafts. There was no such thickening, however, of similar grafts placed on undisturbed granulations, when not dressed with amidoazotoluol. There was distinct overgrowth of epithelium, "pebbly formation," on the thigh, when the area from which the Thiersch grafts were removed was dressed with amidoazotoluol ointment. Another area on the thigh from which Thiersch grafts were taken, but which was dressed with boric ointment, showed no "pebbly formation." The patient has been under observation for over two years and a half since his discharge from the hospital, and there is no sign of malignant degeneration anywhere.

17. Simulating Appendicitis.—An analysis of White's cases shows that pain, tenderness and apparent tumor were present in all cases. The pain came on suddenly in two, gradually in five; it was limited to the side of the abdomen in five, and was referred to the leg in two. Four with extreme tenderness showed rigidity of the abdominal muscles on the right side, but this was probably a voluntary act. Fever was not present in any case, and the digestive disturbances seen in two of the patients were probably coincidents and had no relation to the trouble. One of the patients was markedly neurasthenic, the other six were not. Long-continued severe pain in the right iliac fossa with a marked tumor, but without fever and without digestive disturbances, White says, would indicate trouble other than appendicitis. However, it is not essential that the diagnosis should be made before operation, provided the condition is recognized, if present, as soon as the abdomen is opened. The presence of a tense tendon along the edge of the psoas magnus renders diagnosis easy through an exploratory incision.

Arkansas Medical Society Journal, Little Rock

October, X, No. 5, pp. 119-144

25 New Method of Transplantation of Bone to Close Defects in Skull where Large Areas Have Been Destroyed by Trauma or Disease. J. Smyth, New Orleans.
26 Hydrophobia. L. Thompson, Little Rock.
27 Treatment of Amebic Dysentery. A. F. Hoge, Fort Smith.
28 Repair of Perineal Injuries. A. E. Cox, Helena.

Boston Medical and Surgical Journal

October 23, CLXIX, No. 17, pp. 593-628

29 Some Peculiarities of Medical Progress with Illustrations from Studies of Articular Conditions. H. W. Marshall, Boston.
30 *Anatomic and Surgical Study of Pericecal Membranes. M. F. Fallon, Worcester, Mass.
31 Evolution of Mental Healing. C. F. Painter, Boston.

30. Anatomic and Surgical Study of Pericecal Membranes.—Fallon agrees with others that the so-called Jackson membrane is always present, and is in fact a normal structure for the following reasons: He has always found this membrane when he has looked for it; it has all the characteristics of a normal, congenital, peritoneal membrane It is a delicate structure of equal consistency throughout; even, transparent, and with orderly vascularization. It may be traced to the peritoneal plates of the omentum and may be seen to be continuous with them; especially, when an ascending mesocolon is present. But even when the ascending colon is fused to the parietal peritoneum, the veil can be seen to be continuous with the serous covering of the mesocolon by detaching the fused parietal peritoneum. Here the veil may be seen running under the parietal peritoneum, and to be continuous with the mesocolon. The same membrane envelops the remaining colon, having the same characteristics that it has on the ascending colon. This may well be seen on the transverse colon. He believes that the Jackson membrane is a congenital, normal, constant structure, and is not disabling to the cecum and ascending colon, and is not a membranous pericolitis. That there is a definite pericolitis, however, is established, but it has no relation whatever to the so-called Jackson membrane.

Journal of Abnormal Psychology, Boston

October, VIII, No. 4, pp. 217-288

32 Formulation in Psychoanalysis. F. L. Wells, Waverly, Mass.
33 Psychopathology of Case of Phobia: Clinical Study. M. Prince, Boston.
34 Psychologic Analysis of So-Called Neurasthenic and Allied States. T. Burrow, Baltimore.
35 Possible Correlation Between Delusions and Cortex Lesions in General Paresis. E. E. Southard, Boston.

Journal of Biological Chemistry, Baltimore

October, XVI, No. 1, pp. 1-186

36 Partial Purification of Esterase in Pig's Liver. G. Peirce, Madison, Wis.
37 Compound Formed Between Esterase and Sodium Fluorid. G. Peirce, Madison, Wis.
38 *Rate of Elimination of Nitrogen as Influenced by Diet Factors: Influence of Texture of Diet. L. B. Mendel and R. C. Lewis, New Haven, Conn.
39 *Idem: Influence of Carbohydrates and Fats in Diet. L. B. Mendel and R. C. Lewis, New Haven, Conn.
40 *Idem: Influence of Character of Ingested Protein. L. B. Mendel and R. C. Lewis, New Haven, Conn.
41 Carbon Dioxid and Oxygen Content of Blood after Clamping Abdominal Aorta and Inferior Vena Cava Below Diaphragm. J. R. Murlin, E. Edelmann and B. Kramer, New York.
42 Separation of d-Alannine and d-Valine. P. A. Levene and D. D. Van Slyke, New York
43 Gasometric Determination of Aliphatic Amino Nitrogen in Minute Quantities. D. D. Van Slyke, New York.
44 Improved Methods in Gasometric Determination of Free and Conjugated Amino-Acid Nitrogen in Urine. D. D. Van Slyke, New York.
45 Researches on Purins. C. O. Johns and E. J. Baumann, New Haven, Conn.
46 Polyatomic Alcohols as Sources of Carbon for Lower Fungi. R. E. Neidig.
47 *Comparative Composition of Human Milk and of Cow's Milk. E. B. Meigs and H. L. Marsh, Philadelphia.
48 Influence of Administration of Creatin and Creatinin on Creatin Content of Muscle. V. C. Myers and M. S. Fine, New York.

38. Rate of Nitrogen Elimination.—The typical curve of nitrogen elimination on a selected mixed diet Mendel and Lewis found showed a rise in the first period, reaching a maximum in the second three hours, followed by a fall to the initial level early the next day. With a definite diet it was always possible to duplicate experiments on the same animal. Different animals on the same type of diet have given parallel curves. A delay in the elimination of nitrogen was caused by the addition to the diet of such indigestible materials as mineral oil, vasoline, bone ash, paraffin, filter paper, cork, and agar-agar substances which act in a purely mechanical as contrasted with a chemical manner. Invariably there was a subnormal rate of nitrogen output in the first periods following ingestion of the meal; with paraffin, filter-paper, cork and agar-agar this was followed by a higher rate in the later periods. The effect of the indigestible materials was progressively greater in the order in which they are given above. A delayed absorption of the nitrogen intake, they believe, is presumedly responsible for the slower rate of elimination of nitrogen. As suggested: (1) a slower rate of digestion caused by an early emptying of the stomach and a consequent early exclusion of gastric proteolysis, with the possibility of a more prolonged intestinal digestion; (2) a slower rate of digestion caused by an adsorption of partially digested protein residues by the added indigestible material, making them less readily accessible to the action of the digestive enzymes; (3) an adsorption of the final digestive products by the indigestible substance whereby their absorption from the intestine is hindered.

39. Idem.—Carbohydrates in the diet, Mendel and Lewis state, cause a slower rate of elimination of nitrogen after a protein meal, the various carbohydrates studied having a progressively greater effect in the following order: starch, soluble starch, sucrose, dextrose. The experimental data do not warrant the adoption of more than a tentative theory as to the explanation of the retardation of nitrogen excretion when carbohydrates are present in the diet. It seems quite probable to the authors, however, that the protein-sparing action of carbohydrate is responsible for this delay. The effect on the nitrogen-output curve of replacing the non-nitrogenous constituents of a mixed diet by fat varied with the character of the fat as follows: (a) with the fluid cotton-seed oil there was a slower rate of nitrogen elimination; (b) with lard and "oleostearin," the nitrogen excretion in the early periods following the meal was above the normal. The apparent action of these latter fats was shown to be in reality the result of removing the sucrose from the diet. The action of cotton-seed oil *per se* was to cause a marked delay in the rate of elimination of nitrogen. Neither lard nor "oleostearin" by themselves had any effect on the nitrogen-output curve.

46. **Idem.**—Apart from the character of the protein ingested Mendel and Lewis found that a large number of diet factors—the water intake, the presence and nature of indigestible materials in the diet, the amount and character of the carbohydrate fed, and to some extent the presence of fat in the diet—play a rôle in modifying the rate of elimination of nitrogen after a meal containing protein. With most of the proteins studied the nitrogen-output curves differed to only a slight extent from one another; and in no case did the nature of the protein have a greater effect on the rate of nitrogen elimination than some of the non-protein diet factors mentioned.

47. **Composition of Milk.**—Human milk, Meigs and Marsh state, differs from cow's milk in three important ways. It contains considerably more lactose than cow's milk, and more substances of unknown nature which contain little or no nitrogen; it contains very much less protein than cow's milk. The composition of milk varies more or less regularly with the progress of lactation so that average figures for its composition are not very satisfactory. The following, however, are given as the limits of normal variation of the constituents of the two kinds of milk from the beginning of the second month of lactation onward, the figures representing percentages of whole milk:

	Fat	Lactose	Protein
Human milk	2-4	6-7.5	0.7-1.5
Cow's milk	2-4	3.5-5	2.5-4

Both kinds of milk contain substances which are important constituents of diet, which are soluble in alcohol and ether, which contain little or no nitrogen, but of which the chemical nature is still unknown. These substances are most plentiful in early human milk and diminish in amount with the progress of lactation. Early human milk contains about 1 per cent. of these unknown substances; milk from the middle period of lactation, about 0.5 per cent. Cow's milk from the middle period of lactation contains about 0.3 per cent. of the unknown substances.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October, XL, No. 10, pp. 617-680

49 *Pathology of Myasthenia Gravis. S. Kuh and M. Braude, Chicago.
50 *Rôle Which Heredity Plays in Inducing Epilepsy in Children Suffering from Infantile Cerebral Palsy. L. P. Clark, New York, and E. A. Sharp, Buffalo.
51 Cerebral Palsies without Demonstrable Anatomic Findings. J. H. W. Rhein, Philadelphia.
52 Syphilitic Bone Disease of Skull. M. S. Gregory and M. J. Karpas, New York.

49. **Pathology of Myasthenia Gravis.**—Although examined serially from the lowest to the highest levels, the spinal cord of the case cited by Kuh and Braude presented but few characteristic changes, the most important consisting in occasional small areas of vascular sclerosis, recent hemorrhages, excess of glia tissue in regions in which normally it should not occur, and in the presence of corpora amylacea. An unusual finding was the presence of an aberrant bundle of fibers in the cervical region. There were present in the higher levels of the cord capillary polymorphonuclear thrombi and chromatolytic and pigmentary changes in the nerve cells. There was a rapid increase in the number of these capillary thrombi in the upper cervical, and a still greater number in the medulla oblongata in the regions of the nuclei of the lower cranial nerves, in the pyramids and sensory tract. In the proportion as the number of these thrombi increased, in just such proportion did the nerve cells in their vascular tributaries show chromatolytic and pigmentary changes. Although less pronounced, the regions of the pons and corpora quadrigemina were also the seats of a moderate number of these thrombi, which were likewise accompanied with corresponding changes in the nerve cells. There were relatively few vascular changes in the cortex and *none* in the optic thalami.

Examination of the muscles (about 50 pieces) showed only changes repeatedly described by others: great variability in the size of the muscle fibers, the presence of pale fibers, simple and degenerative atrophy, fatty degeneration, increase in the number of the sarcolemma nuclei; recent hemorrhages, interstitial perivascular infiltration of lymphocytes, plasma and mast cells. Macroscopically no trace of thymus gland. The case presented two unusual features, one clinical, not described elsewhere, namely, a feeling of fatigue produced by passive movements, and one pathologic, the occurrence of an aberrant bundle of fibers in the cervical region of the cord.

50. **Heredity in Epilepsy in Children.**—Clark and Sharp are of the opinion that the heredity factor in hemiplegic epilepsy is only a little less in evidence than that of genuine epilepsy, and that the prognosis as to a sequential epilepsy following in the wake of a given case of infantile cerebral palsy should be based on the presence and degree of spasmophilic or simple neurotic history, and that this latter fact should be given as much or even more weight than the site, nature and degree of the initial cerebral injury as expressed in the palsy.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, V, No. 1, pp. 1-103

53 Action of Serum on Perfused Heart of Rabbit. A. R. Cushny and J. A. Gunn, London.
54 Effect of Certain Oxidizing Substances and Acids and Alkalies on Isolated Mammalian Heart. A. S. Loevenhart and J. A. E. Eyster, Madison, Wis.
55 Apparatus for Perfusion of Isolated Organs especially Isolated Mammalian Heart. J. A. E. Eyster and A. S. Loevenhart, Madison.
56 Effect of Atophan and Novatophan on Endogenous Uric Acid Excretion of Normal Men. H. D. Haskins, Cleveland.
57 *Treatment of Experimental Beriberi with Extracts of Spinal Cord. C. Voegtlin and C. Towles, Baltimore.
58 *Action of Nitrites and Drugs of Digitalis Group on Isolated Coronary Artery. C. Voegtlin and D. I. Macht, Baltimore.
59 *Reversible Action of Adrenalin and Some Kindred Drugs on Bronchioles. F. L. Golla and W. L. Symes, London.

57. **Treatment of Experimental Beriberi.**—Voegtlin and Towles found that an aqueous extract of autolysed spinal cord from which coagulable protein has been removed, contains an antineuritic substance which cures symptoms of polyneuritis in rice-fed birds in daily doses corresponding to 4 grams of dried cord. This substance, when added to a diet of polished rice, is capable of removing the nervous symptoms of the disease, but cannot reestablish a normal metabolism, nor enable the affected birds to recover their body weight. The antineuritic substance is liberated through autolysis from the nerve fiber.

58. **Action of Digitalis on Coronary Artery.**—The pharmacologic action of various drugs on the coronary artery was studied by Voegtlin and Macht directly, that is, by the use of excised arterial rings or strips. Rings of the coronary arteries of the ox and the pig were used. Digitoxin, digitalin, digitonin, digitalein, digalen, bufagin, cymarin, strophanthin, tincture of digitalis, infusum digitalis, amyl nitrite, sodium nitrite, nitroglycerin, erythrol tetranitrite and theobromin were the substances used. It was found that digitonin and digalen produce relaxation, while digitoxin, digitalin and bufagin cause a constriction of the coronary arteries. It seemed that digitonin is responsible for the relaxation produced by digalen and the infusion of digitalis, for it is known that the infusion of digitalis and digalen both contain that body. All the nitrites were also found to produce relaxation. It was furthermore noted that the two sets of drugs, the nitrites and digitalis-like bodies, can antagonize each other in their action.

Work done on the physiology and pharmacology of circulation would seem to indicate that the action of the above drugs would be the same on the intact mammalian heart. The vasoconstrictors of the coronaries run in the vagus nerve, and knowing the powerful vagus action of digitoxin and bufagin, the coronary constriction if anything might be even accentuated in life. Whenever, therefore, coronary spasm is to be avoided or guarded against, it would be advisable to employ the digitonin-containing preparations, or simultaneously administer the nitrites. Furthermore, if angina pectoris is due, as is generally assumed, to spasm of the coronary vessels, the authors are of the opinion that their results would certainly tend to explain the favorable action of the nitrites in coronary angina.

59. Reversible Action of Epinephrin.—Golla and Symes found that the action of epinephrin, epinine, tyramine, and some other amines and alkaloids, on normal bronchioles, is constriction. *This constriction is not parallel to*, and usually outlasts the accompanying vascular change. It is abolished by urethane. It is not attributable to secretion. It is, therefore, contraction of bronchiolar muscle. After bronchiolar constriction by certain other drugs, adrenalin, etc., produce bronchiolar dilatation. Among drugs after which the normal action of adrenalin, etc., is reversed, are curare, ergotoxin, apocodein, pilocarpin, muscarin and physostigmin. The tracheal muscle differs in its reactions from that of the bronchioles.

Kentucky Medical Journal, Bowling Green

October 15, XI, No. 21, pp. 889-924

60 Vaccine Treatment of Pertussis in Children. H. A. Davidson, Louisville.
61 *Epidemic Anterior Poliomyelitis.* P. F. Barbour, Louisville.
62 Iodids. J. W. Gilbert, Lawrenceburg.
63 Treatment of Typhoid Rib. N. Evans, Murray.
64 Diseased Domestic. E. D. Burnett, Anchorage.
65 Traumatic Displacement of Kidney. J. H. Peak, Louisville.
66 Emergency Surgery with Special Reference to Injuries to Back and Spine Occurring in Coal Mining Practice. B. E. Giannini, Straight Creek.
67 Vaccine Therapy. R. H. Davis, Louisville.
68 Intubation in Membranous Croup. W. Mason, Murray.
69 What Busy Practitioner Can Do To Educate Public in Prevention of Diseases. A. V. Menefee, Williamstown.
70 Auto-Intoxication. O. W. Brown, Lenoxburg.
71 Medical Ethics. J. L. Anderson, Manchester.
72 Non-Operative Management of Prostatic Hypertrophy. S. G. Zinke, Richmond.
73 Microscopic Host. T. J. Townsend, Owensboro.

Journal-Lancet, Minneapolis

October 15, XXXIII, No. 20, pp. 561-588

74 Clinical Data on Renal Lithiasis. W. F. Braasch, Rochester, Minn.
75 Membranous Sore Throat. S. A. Keller, Sioux Falls, S. D.
76 Refraction by General Practitioner. J. A. Hohf, Tripp, S. D.
77 Optometry Evil. G. Golseth, Jamestown, N. D.
78 Diagnosis of Gastric Ulcer. W. F. Bushnell, Elk Point, S. D.
79 Primary Inflammatory Tumors of Cecum. A. A. Law, Minneapolis.

Medical Record, New York

October 25, LXXXIV, No. 2242. pp. 737-782

80 Case of Pseudobulbar Paralysis. B. Oettinger, Denver.
81 Early Rhinoplasty. J. B. Stein, New York.
82 Mild Manifestations of Syringomyelia. C. B. Craig, New York.
83 Roentgenoscopy of Diseases of Stomach. I. H. Levy, Syracuse, N. Y.
84 *Frequency of Amentia as Related to Sex. L. S. Hollingworth, New York.
85 Tonsil-Vestigial Respiratory Organ. J. A. Hagemann, Pittsburgh.

84. Frequency of Amentia.—Hollingworth suggests that the tonsils are probably vestigial organs of respiration, a modified form of gills or branchiae, surviving from the piscine and amphibious periods of man's descent; yet not deciduous, as were the gills of most amphibians that permanently abandoned aquatic habitats.

Military Surgeon, Washington, D. C.

October, XXXIII, No. 4, pp. 299-399

86 Military Surgeon. W. C. Braisted, U. S. Navy.
87 What Would Be Ideal Relationship of Hospital Ship to Fleet in Time of Peace, from Standpoint of Fleet. G. A. Lung, U. S. Navy.
88 Relationship of Hospital Ship and Medical Transport to Fleet in Time of War. F. L. Pleadwell, U. S. Navy.
89 Organization of Medical Department of Division for Battle. D. N. Carpenter, U. S. Navy.
90 Preparation of Wounded for Transfer and Transport after Battle. C. M. Oman, U. S. Navy.
91 Organization for Transportation of Wounded after Battle in Battleship. D. C. Cather, U. S. Navy.
92 Transportation of Wounded from Ship of War to Sanitary Base. E. M. Blackwell, U. S. Navy.
93 Mental Hygiene. E. W. Lazell, U. S. Army.
94 Cooperation Between Federal, Municipal and Naval Authorities in Prevention of Venereal Disease. G. B. Trible, U. S. Navy.

New York Medical Journal

October 25, XCVIII, No. 17, pp. 797-844

95 Legal Responsibility of Surgeon and Practitioner which Use of Roentgen-Ray Involves. E. Eliot, New York.
96 *Percussion of Pulmonary Apices.* M. Fishberg, New York.
97 Oral Sepsis and Its Possible Dangers. R. C. Rosenberger, Philadelphia.
98 Clinical Report on Value of Turtle Tuberculin in Treatment of Tuberculosis. W. J. Beattie, Littleton, N. H., and E. E. Myers, New York.
99 *Testing Urine for Indican.* J. Rosenbloom, Pittsburgh.
100 *Intravenous Injections of Theobromin Sodium Salicylate. W. Neuhof, New York.
101 Skin Diseases in Schoolchildren. E. Pisko, New York.
102 Differential Diagnosis of Some Ordinary Eye Diseases. F. Krauss, Philadelphia.
103 Plea for More Intensive Mercurial Medication in Syphilis. M. Zigler, New York.
104 Treatment of Fractures near Wrist Joint with Special Reference to Colles' Fracture. A. O. Wilensky, New York.

100. Theobromin Sodium Salicylate.—The object of Neuhof's communication is to show the practicability of intravenous theobromin sodium salicylate injections. The solution is readily prepared and sterilized, and when properly given produces no reaction. While 20 c.c. of a 5 per cent. solution have been found a convenient standard, it may be modified to suit individual requirements. It seems particularly indicated in uremia, in the anuria of cardiovascular renal diseases, and in some types of primary renal disease when internal administration is impracticable or impossible and quick diuretic action is necessary. It is further suggested that these injections may be of benefit in some types of uremia accompanying eclampsia; in conjunction with other forms of treatment, it may help in starting diuresis.

Northwest Medicine, Seattle, Wash.

October, V, No. 10, pp. 269-298

105 Types of Pulmonary Tuberculosis with Exclusive Occurrence of Much Granules in Sputum. R. C. Matson, Portland, Ore.
106 Operative Midwifery in General Practice. C. N. Suttner, Walla Walla, Wash.
107 Present Day Classification of Nephritis with Notes on Therapeutic Applications. F. Epplen, Spokane, Wash.
108 *Clean Milk Problem.* E. W. Janes, Tacoma, Wash.
109 Operative Treatment of Paralysis in Children. F. J. Fassett, Seattle, Wash.

Ohio State Medical Journal, Columbus

October, IX, No. 10, pp. 463-514

110 Medical Education in Hygiene and Public Health. E. F. McCampbell, Columbus.
111 Differential Diagnosis Between Gastric and Duodenal Ulcer, Chronic Appendicitis and Gall-Bladder Disease. C. A. Hamann, Cleveland.
112 Fatalities of Delay in Diagnosis and Treatment of Rectal Diseases. G. B. Evans, Dayton.
113 Treatment of Pleurisy with Effusion. W. A. Dickey, Toledo.
114 Technic for Diagnosis of Position When Occiput Presents. A. Rogers, Columbus.
115 Eight Hundred Tonsillectomies with Special Tonsil Knife. D. F. Reeder, Ancon, C. Z., and H. V. Dutrow, Dayton, O.

United States Naval Medical Bulletin, Washington, D. C.

October, VII, No. 4, pp. 489-679

116 Some Aspects of Prophylaxis of Typhoid by Injection of Killed Cultures. C. S. Butler, U. S. Navy.
117 William Longshaw, Jr., Assistant Surgeon, United States Navy (1839-1865). J. D. Gatewood, U. S. Navy.
118 Intraperitoneal Rupture of Bladder: Report of Case. R. B. Williams, U. S. Navy.
119 Nitrous Oxid-Oxygen Anesthesia. H. F. Strine, U. S. Navy.
120 Leukemia, with Report of Case of Lymphatic Type. H. L. Kelley, U. S. Navy.
121 Hospital Corps. G. A. Riker, U. S. Navy:
122 Veru Montanitis. H. W. Cole, U. S. Navy.
123 Tests for Color Blindness. G. B. Trible, U. S. Navy.
124 Medical Work in American Samoa. E. U. Reed, U. S. Navy.
125 *Case of Recurrent Dislocation of Shoulder. R. B. Williams, U. S. Navy.
126 Medical Department in Warfare. A. W. Dunbar, U. S. Navy.
127 *Iodized Gauze for First-Aid Packet. F. E. McCullough, U. S. Navy.
128 Incinerator. A. Farenholt, U. S. Navy.

125. Recurrent Dislocation of Shoulder.—The technic employed by Williams is described as *follows:* Incision 4½ inches in length from tip of the coracoid along the inner border of the cephalic vein, exposing the vein. The fibers of the deltoid were separated by blunt dissection and the insertion of the pectoralis major exposed. The upper two-thirds of the fibers of this muscle were divided on a director and the arm was rotated outward, exposing the flat tendon of the subscapularis tightly stretched over the head of the bone. The upper half or more of the tendon of insertion of this muscle was similarly divided, thus bringing into view the anterior and inferior portions of the capsule. The capsule was incised in a vertical direction for a distance of 1½ inches. The tips of two fingers could be easily inserted between the lower portions of the capsule and the articular surfaces. The margins of the incision were overlapped for a distance of three-quarters of an inch by four mattress sutures of chromic catgut in the same manner that the aponeurosis is overlapped in operating on ventral hernia. The free margin of the incised capsule was slipped down to the outer surface of the capsule by a continuous chromic suture. The divided tendons of the subscapularis and pectoralis major were next carefully united with interrupted chromic gut stitches. Several chromic gut stitches were used to bring together the separated fibers of the deltoid: the skin wound was closed with interrupted sutures. Recovery was uneventful, healing occurring by primary union. Passive motion was begun on the fifth day. The patient was discharged to duty nine weeks after the operation.

127. **Iodized Gauze for First-Aid Packet.**—The gauze used in the first-aid packet of the U. S. navy has been treated with the following: iodin, 10 parts; potassium iodid, 15 parts; water (a sufficient quantity to dissolve). The gauze is colored a deep brown and thoroughly impregnated with iodin. It answers the double purpose of being a confusion color, which is not to be detected from the surrounding terrain, and of supplying an iodin dressing to the surface applied, and in that iodin is conceded to be the most efficient topical antiseptic. The gauze, thus iodized, not only insures the military purpose of invisibility but furnishes an ideal method for preventing sepsis.

West Virginia Medical Journal, Wheeling

October, VIII, No. 4, pp. 109-142

129 Early Ectopic Gestation. S. L. Jepson, Wheeling.
130 Case of Tubal Pregnancy. S. B. Lawson, Logan.
131 Conservation of Natural Resources. A. A. Shawkey, Charleston.
132 Glaucoma. E. E. Gibbons, Baltimore.
133 Case of Intracranial Tumor, Possibly Cerebellar. M. Mendeloff, Charleston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

August 30, XXXIV, No. 9, pp. 191-214

1 Movable Kidney. C. MacLaurin.
2 Recent Cases of Small-Pox. F. S. Hone.
3 Method of Enucleation of Tonsils and Removal of Adenoids. H. Bullock.

September 6, No. 10, pp. 215-238

4 Tuberculosis and Diabetes. G. E. Rennie.
5 Case of Splenic Leukemia Treated with Benzol. J. Corbin.
6 Benzol in Leukemia. C. T. de Crespigny.

September 13, No. 11, pp. 239-260

7 Therapeutic Value of Secondary Rays Produced from Metal by Action of Roentgen Rays. E. J. Roberts.
8 Pituitrin in Labor. E. A. Officer.
9 Surgical Anatomy of Forearm and Hand. A. L. Buchanan.

September 20, No. 12, pp. 261-282

10 Case of Congenital Club Hand, Congenital Partial Radius Defect, etc., in Adult. H. Rischbieth.
11 Observations on Urinary Calculi. J. P. Hastings.

British Medical Journal, London

October 11, II, No. 2754, pp. 897-972

12 Action of Strophanthin on Cardiac Tissue. A. J. Clark.
13 Maximal and Minimal Blood-Pressures and Their Significance. J. F. H. Dally.
14 *Idioventricular Rhythm. C. A. Robinson.
15 Fatal Purpura Following Scarlet Fever. J. Biernacki and A. L. Dykes.
16 Acute Facial Dermatitis Produced by Hair Dye. H. C. Semon.
17 *Genesis of Cancer. A. Turnbull.
18 Electrargol in Small-Pox. R. Denman.
19 Secondary Roentgen-Ray Radiations in Medicine. C. G. Barkla.
20 Radium and Radio-Therapeutics, Chiefly in Malignant Growths. A. P. Gould and R. Abbe.
21 Indications for Roentgenization Before, During and After Operation for Cancer. F. H. Johnson.
22 Technic of Roentgenotherapy of Cancer. F. Fowler.
23 Cardiospasm. A. C. Jordan.
24 Collargol Injections in Diagnosis of Diseases of Urinary Tract. W. I. Bruce.
25 Roentgenotherapy of Uterine Fibroid. A. F. Savill.
26 Secondary Roentgen Rays in Connection with Ionization. J. D. Harris.
27 Roentgenotherapy of Gynecologic Cases at Freiburg. C. J. Gauss.
28 Roentgenotherapy of Ringworm. G. B. Batten.
29 Suggested Standards in Roentgenoscopy of Alimentary Canal. A. F. Hertz.
30 Present Position of Roentgenoscopy of Pulmonary Tuberculosis. E. R. Morton.
31 Electro-Therapeutics in Neuron Lesions. C. F. Bailey.
32 Value of Condenser Discharges in Treatment. H. L. Jones.
33 Use of Condensers in Electrical Testing and Some Results. E. P. Cumberbatch.
34 Pathologic Blood-Pressure and Its Treatment by Modern Electro Therapeutic Measures. F. H. Humphris.
35 Treatment of Corns and Warts by Ionization. H. L. Jones.

14. **Idioventricular Rhythm.**—The conclusions arrived at by Robinson from a study of polygraphic tracings are that the infrequency of the pulse-rate is due primarily to a relative delay in the rate of stimulus formation at the sinus. This, together with an extrasystolic contraction of the auricle not followed by a ventricular response, causes the period before effective stimulation of the ventricle coming from the normal situation to be so long that the ventricle escapes, and in turn produces auricular contraction by a retrograde stimulation, thus producing the establishment of the idioventricular rhythm.

17. **Genesis of Cancer.**—The internal transformation changes of tissue were made the subject of study by Turnbull. His results are based on 25,000 measurements and over 300 calculations. They establish what he believes to be a principle of the first magnitude in the cancer problem, namely: There exists a relation between the strain to which a tissue is exposed and the extent to which that tissue varies. This principle he thinks offers a rational explanation of the transformation of normal into cancerous tissue without it being necessary to think of any external cause for cancer whatsoever, for example, parasites. The above results indicate that cancer is explainable as an internal, compensatory and essentially physiologic tissue-change. If the above results be true then cancer is not infectious.

Journal of Tropical Medicine and Hygiene, London

October 1, XVI, No. 19, pp. 297-312

36 Clinical Study of Malarial Fever in Panama. J. P. Bates.
37 Acquisition of Acid-Fast Properties by Filamentary Organism Cultivated from Animal Injected with Culture of Hansen's "Bacillus." J. M. Santamaria.
38 Fibrosarcoma in Native of Central Africa. A. Y. Massey.
39 Case of Trypanosomiasis Found on Hills, Twenty-Two Miles North of Serenje, in North Rhodesia. A. Brown.
40 Treatment of Human Trypanosomiasis by Salvarsan and Neosalvarsan. A. Kopke.

Lancet, London

October 11, II, No. 4702, pp. 1041-1102

41 *Fever in Pulmonary Tuberculosis: Its Significance and Therapeutic Indications. F. J. Wethered.
42 Examinations, Examiners and Examinees. W. Osler.
43 Present Problems Relating to Origin of Modern Races. A. Keith.
44 Problems of University Medical Education in London. W. Hunter.
45 Relation of Medical Knowledge to War Conditions. B. M. Skinner.
46 Hard and Soft Water. J. C. Thresh.
47 *Arteriovenous Anastomosis for Impending Gangrene. C. Goodman.
48 Formation of Artificial Vagina by Transplantation of Portion of Ileum (Baldwin's Operation). V. Bonney.
49 Use of Atropin Tablets for Determination of Refraction in Children. F. Moxon.
50 Use of Gelatin in Microscopic Technic. W. Johnson.

41. **Fever in Pulmonary Tuberculosis.**—Wethered emphasizes the fact that a rise of temperature in pulmonary tuberculosis, apart from accidental factors, may be considered an indication of activity, and that the most reliable means for reducing activity is rest. If, therefore, a patient who has been progressing favorably exhibits a rise of temperature, it must be accepted as a sign that rest must be insisted on. In other words, a patient suffering from pulmonary tuberculosis must live in accordance with his temperature chart. Any increase of cough and expectoration, headache, general

malaise, and so on, should always be regarded as calling for a record of the temperature for a few days, and should a rise be found the necessary measures should be taken in accordance with the general features of the case.

47. Arteriovenous Anastomosis for Impending Gangrene.—This operation was performed by Goodman in fifteen cases on the femoral vessels, and in this series he noted that the foot, previously cold and cadaverous in appearance, took on a feeling of warmth and a healthy pink color. The valves of the veins were only a temporary barrier to the course of the blood against the constant pounding of the heart. The pain due to ischemia was relieved shortly after the operation in all these cases. Strongly presumptive evidence of establishing a reversal of the circulation are the following facts: improvement of color, increase of warmth of the affected part, relief from pain, filling of the superficial veins, pulsation of veins below site of anastomosis, and return of part threatened with gangrene, or the actual seat of gangrene, to the normal. Goodman had six successes. Several of these cases which promised success required amputation later, but even these had temporary relief from pain. He used the end-to-end method in all excepting one case, as he found it the simplest in execution and least likely to cause thrombosis. The operation should not be undertaken in the presence of sepsis, advanced or fulminating gangrene. The opportune time for intervention is in the pregangrenous stage before mortification has set in, in order to prevent its inception. In nonseptic gangrene the improved nutrition of the limb may be hoped for, permitting lower amputation than would otherwise be possible. The utmost delicacy and skill in minute detail must be observed in order to avoid the formation of thrombi; a most rigid asepsis is required throughout the operation, or the object of the operation will be defeated. Goodman made thirteen end-to-end anastomoses, one side-to-side, and in two of the cases an exposure of the vessel showed that an attempt to anastomose was not warranted on account of the advanced stage of thrombosis of the vessels. In two cases with gangrene a low amputation seemed to be satisfactory. Of the eight cases which were failures, including one death, one was a side-to-side anastomosis, and three of the remainder should not have been operated on on account of the presence of spreading gangrene.

Quarterly Journal of Medicine, London

October, VII, No. 25, pp. 1-91

51 *Auricular Flutter. W. T. Ritchie.
52 *Variations in Excretion of Endogenous Uric Acid Produced by Changes in Diet. G. Graham and E. P. Poulton.
53 Uricemia and Gout. I. W. Hall.
54 *Strychnin in Heart Failure. J. Parkinson and R. A. Rowlands.
55 *Type of Cerebral Maldevelopment (Forebrain Aplasia). G. A. Sutherland and H. Paterson.
56 *Sulphemoglobinemia. R. L. M. Wallis.

51. Auricular Flutter.—In one case examined by Ritchie, auricular flutter, at a rate usually of 250 to 276 per minute, persisted almost uninterruptedly for seven and a half years. The auricles meanwhile were not under vagus control. The flutter had then been replaced by an auricular tachysystole at a rate of 187 to 201 per minute, the form of the auricular deflexions had changed and the auricles were under vagus control. The pathologic changes are described in a heart that presented auricular flutter ten days before death. There were slight, diffuse inflammatory processes in the myocardium. Both nodes, the bundle and its branches, were slightly affected. The clinical and electrocardiographic features are described in a new case presenting transitions between auricular flutter, fibrillation and an intermediate form of auricular activity.

52. Variations in Excretion of Endogenous Uric Acid.—Graham and Poulton found that the consumption of a diet consisting of protein and fat of insufficient caloric value causes a fall in the endogenous uric acid output of between 30 and 50 per cent. If most of the fat in the previous diet is replaced by carbohydrate, there is no fall in the output of endogenous uric acid. A fall in the endogenous uric acid is also produced in two other conditions: (a) starvation during the first few days; (b) the consumption of a carbohydrate and fat diet. The following possible causes to account for the diminution in the uric acid output have been considered by the authors: (a) diminution in protein metabolism; (b) loss of body protein; (c) acidosis; (d) increased fat metabolism; (e) the interaction of protein and carbohydrate metabolism. Decided objections are raised to the first four hypotheses, but the last hypothesis seems to agree with the facts observed by other authors and Graham and Poulton.

54. Strychnin in Heart Failure.—An inquiry was undertaken by Parkinson and Rowlands to obtain evidence as to its immediate effect when given subcutaneously in cases of severe heart failure. The blood-pressure, rate and regularity of pulse, rate of respiration and general condition were recorded for an hour after each injection. The action of repeated doses was not investigated. Fifty patients were examined on admission and approved if they presented symptoms and signs of severe heart failure with or without valvular disease; those with heart failure secondary to pulmonary or renal disease were excluded, as were those with pyrexia. Most of the patients showed orthopnea and edema of the legs; all had shortness of breath. Strychnin sulphate in a dose of one-fifteenth of a grain (1/15 gr. = 0.0044 gm.) was given subcutaneously in each experiment. Before any observations were made the patient was allowed to remain quietly at rest in bed for three to eight hours, and during this period no drugs were administered. After the injection, records were made at the end of each period of five minutes during one hour. In cases with regular rhythm on no occasion was any increase in blood-pressure produced. The average rate of the pulse before injection was 107.6, and after injection 104.0, a slight decrease of 3.3 beats per minute. The authors ascribe this fall to the same factors as mentioned above under blood-pressure.

The rate of respiration was unaffected by strychnin. No change in amplitude of respiratory movement was noted. In four cases out of the twenty-five Cheyne-Stokes breathing was recorded on the respiratory tracing. Strychnin had no effect on this abnormal respiratory rhythm. In twenty-five cases with auricular fibrillation the average rate of the pulse decreased by only 3.4 beats per minute in the hour following the injection. None presented any change in irregularity. The average rate of respiration showed a decrease of not more than one or two respirations per minute alike after strychnin and after pure water. No change was observed in the amplitude of respiratory movements. In one case Cheyne-Stokes respiration was recorded; this remained unaffected by the injection. The authors conclude that strychnin has no effect which justifies its employment as a rapid cardiac stimulant in cases of heart failure.

55. Type of Cerebral Maldevelopment.—Sutherland and Paterson draw attention to a peculiar form of cerebral maldevelopment which produces a characteristic series of symptoms during life and which presents after death definite pathologic changes. Their experience is limited to two cases. Both patients were females. Both appeared to be healthy at birth and at the end of the second week developed "convulsions" or twitching movements. No evidence of syphilis or tuberculosis was discovered either during life or after death. No external evidences of maldevelopment were seen. The heads were rather small, but there was nothing suggestive of a condition of microcephaly. The fontanelle did not pulsate and was not bulging.

What was very striking was the curiously apathetic condition in which the child lay, never smiling or looking about, or taking notice of anything. The same placid look of calm indifference was always maintained. No gleam of intelligence was ever present, and no evidence that the child could see or hear.

An examination of the eyes showed nystagmus in both cases, but no changes in the fundi. Fits of crying occurred at irregular intervals and would sometimes last for hours. The cry was more like the yapping of a dog, regular, monotonous, weird, expressionless and invariably of the same nature in the individual patient. The character of the crying suggested an automatic discharge of energy at regular intervals. At times there was an abortive cry, that is, the face was screwed up into the expression of crying but no sound was elicited. At rarer intervals screaming of a loud and piercing character was present, but without any sign of pain or distress, and without any obvious cause. Yawning was a marked feature throughout and of frequent occurrence. Slowly opening its mouth the infant threw its head back, then stretched its limbs, then flexed them—in short, the whole process of a leisurely yawn was gone through. Sucking and swallowing were seriously interfered with, and this difficulty appeared to increase from week to week. The respiration was markedly altered. Tachypnea lasting for hours or days was present in both cases. The breathing was always of the so-called medullary type, that is, superficial, almost purely abdominal, and without any sign of distress. There was no evidence of any pulmonary disease. The breathing was often cyclic, spells of active breathing lasting for from nine to thirty-seven seconds, being followed by periods of apnea, lasting for from four to twelve seconds. The longer the spell of breathing, the longer was the apneic period. A long period of respiration usually showed a uniform curve, while the shorter spells were marked by great variation in the depth and rate of breathing.

Attacks of tachycardia were frequently noted in both patients, the cardiac rate rising to 200 beats per minute. The sounds of the heart at those times were of fetal character, but no evidence of cardiac disease was detected and no signs of cardiac weakness were present. Clinically, the cardiac condition was very similar to that seen in paroxysmal tachycardia. The attacks of tachycardia and tachypnea were sometimes associated and sometimes not. Pyrexial disturbance was a marked feature in one case, less marked in the other. The temperature would run up suddenly to 104 or 105 F., the skin would become quite red, and profuse sweating usually occurred. No cause for these attacks could be found on physicial examination. Sensation seemed to be entirely absent. Twitching of the limbs, which was the first symptom noted in both cases, was a marked feature throughout. Clonic spasms and tonic spasms were present, sometimes continuous for days and sometimes absent for days, but always tending to become more pronounced and more persistent in the form of rigidity. Twitching was less marked in the face than in the limbs. The upper extremities tended to become flexed at the elbows, while the lower limbs were extended at the knees. The feet and hands were often fixed in the position of tetany. Tapping the skull with the finger would sometimes induce immediately a clonic and then a tonic spasm of the trunk and extremities. Opisthotonos was an early and progressive symptom, although at times it passed off altogether, and at other times was very pronounced. Even more striking, because of its rarity in infancy, was a condition of pleurosthotonos which was present in both cases. At the necropsy the brain was found extremely ill developed (or atrophied) as regards the cerebral lobes, with the exception of the extreme hinder portions of the posterior lobes, which appeared to be normal.. The cerebellum, the medulla, the pons and the basal ganglia presented a normal appearance. The lateral ventricles were not dilated, the foramen of Monro was patent and normal, the third and fourth ventricles were not enlarged, and the patency of the *iter* was established.

56. **Sulphemoglobinemia.**—Five cases of sulphemoglobinemia examined by Wallis all showed the characteristic features of this disease, viz., marked cyanosis, weakness, headache, and constipation without signs of any lesion in the heart and lungs. The sulphemoglobin partially replaces the oxyhemoglobin of the blood and is present in the red blood-corpuscles and not in the serum. The serum of all the patients contained a strong reducing substance, possibly of the nature of a hydroxylamin derivative capable of producing reduction of the oxyhemoglobin. This, Wallis says, is an essential and primary stage in the production of sulphemoglobin. A nitroso-bacillus occurred in the buccal cavity of these patients, and from its biochemical characters appeared to be capable of producing such a reducing substance. The sulphuretted hydrogen present in the body was in sufficient quantity to form sulphemoglobin under these conditions.

Annales de Gynécologie et d'Obstétrique, Paris

September, XL, No. 9, pp. 497-560

57 *Uterine Cancer. (Valeur comparée des procédés opératoires du cancer de l'utérus et des résultats obtenus.) D. De Ott. (Le cancer de l'utérus "col et corps.") E. Wertheim.

57. **Cancer of the Uterus.**—These two articles were presented by request at the recent international medical congress. Ott is known as the apostle of extensive vaginal and Wertheim of extensive abdominal hysterectomy for cancer. The former states that while his percentage of permanent recoveries is a little smaller than with the abdominal technic, yet the number of persons actually cured is higher than with the abdominal technic as none was damaged in any way by the vaginal operation, while the operative injuries and by-effects from the abdominal operation lead comparatively frequently to fatal complications. Ott grants that once past the breakers, a larger proportion of the individuals left are cured, but he claims that by avoiding the breakers a bigger crowd of patients start on the road to recovery, and the percentages are thus not comparable between the two groups. His total mortality in 345 vaginal hysterectomies for uterine cancer was 1.7. Of the 246 patients whose fate is known after five years, 34.1 per cent. seem to be permanently cured. There is thus a proportion of seventeen permanent cures to one fatality (17 to 1). He tabulates along with his figures Wertheim's published statistics in 500 abdominal cases; the immediate mortality was 19.4 per cent.; of the 180 patients whose fate is known after five years, 57.6 per cent. seem to be permanently cured. The proportion of permanent cures to one fatality is, however, only as 1.7 to 1.

Wertheim's article brings his statistics down to date; abdominal operations for cancer of the cervix in 714 cases; primary mortality 18.6 per cent.; the permanently cured after five years, 186 or 42.5 per cent. Among this group cured for five years are 14 patients whose lymph-nodes showed malignant involvement at the time of the operation. He had postoperative necrosis of the ureter in 6 per cent. of the total 714 cases. He found only 50 per cent. operable of the 1,501 cases encountered during the fifteen years since he introduced his more extensive technic.

Ott sums up his comparison of the end-results with the two methods in the statement: "With the abdominal technic, one gets one and a half times more chance of permanent recovery after five years, but one runs eleven times more danger of dying during or immediately after the operation." (Ott's vaginal operation is done with special endoscopes, some of which were illustrated in THE JOURNAL, 1902, xxxix, 458. He does not describe his technic in this article.)

Annales de Médecine et Chirurgie Infantiles, Paris

October 1, XVII, No. 19, pp. 633-668

58 *Familial Purpura; Three Cases. M. Cousin.
59 *Case of Meningitis with Serotherapy. (Méningite cérébro-spinale à méningocoques. Accidents sériques.—Guérison.) Giraud and Marnay.
60 *Early Operative Treatment of Congenital Spastic Paralysis. P. Redard.

58. **Familial Purpura.**—Cousin states that a child of 10 developed purpura; three years later his cousin, of about the same age, and four years later a more distant cousin. The family has a history of bleeding easily but no actual hemophilia is known. Cousin gave calcium chlorid to each of the children and the effect was promptly apparent. He ordered 1 gm. a day in a very dilute solution, and the extremely severe purpura in each case abated under its influence and there has been no return since. Two of the children are now sturdy youths, but the third is inclined to be delicate. The calcium chlorid acts on the cause of the purpura, and consequently it should be supplemented by symptomatic measures until its effect is apparent.

59. **Serotherapy in Meningitis.**—The meningitis in the case reported developed in three stages, first ten days of true mea-

ingitis subsiding under serotherapy and followed by an interval of six days almost free from symptoms. Then the temperature ran up again, the symptoms of meningitis returned and the parotid gland swelled. Then 20 c.c. of the antimeningitis serum was injected, nine days after the first injection. No therapeutic effect followed but the next day diffuse urticaria developed, with pains in the joints and severe contractures resembling spastic paralysis. They persisted severe for several days and then gradually subsided so the child entered on his convalescence in seven days, a month after the first symptoms. This case is compared with other literature on the serotherapy of meningitis, and the disturbances that followed the serum are ascribed to direct irritation of the meninges by the serum; it is not necessary to invoke anaphylaxis. Disturbances of this kind have been noted even after a first injection; Sicard and Salin have reported cases in which the temperature ran up and headache, nausea and the Kernig sign followed on injection of saline or antimeningitis serum and necropsy revealed intense congestion of the pia with infiltration. The serum evidently induces an inflammatory reaction, but this generally escapes notice as it is masked by the more prominent symptoms of the original meningitis. The above syndrome cannot be ascribed to anaphylaxis, but it may be associated with manifestations of true anaphylaxis.

60. **Congenital Spastic Paralysis.**—Redard believes in operating early for Little's disease, between the ages of 3 and 5. He begins with a course of massage, baths and sedatives to prepare the little patient, and then strives (1) to do away with all peripheral sources of irritation; (2) to reduce the exaggerated reflex action, the muscular spasm, aiming to train the contracted muscles and their antagonists, and (3) to prevent and correct vicious attitudes and deformity. Redard's article was read at the recent International Medical Congress; it discusses the various operations required to meet the individual conditions and extols the advantage of means—such as vertical extension—to stretch the spinal cord and thus reduce its irritability. This alone may lead to notable reduction in the spasms, diminish the reflex excitability and permit better use of the muscles. He sometimes trains the child to walk while it is still held up in vertical extension. The Foerster operation is so severe it should be restricted to exceptional cases, but transplanting of muscles and tendons often proves surprisingly effectual. In the moderately serious cases improvement under operative and orthopedic measures is always notable and frequently it amounts to an absolute cure.

Archives Générales de Chirurgie, Paris

September, VII, No. 9, pp. 1025-1152

61 *Dislocation of the Thumb. (Les luxations trapézo-métacarpiennes.) J. Regnault.
62 Comparison of Hydrocele Fluid with the Blood Plasma. L. Delrez.
63 Gastro-Enterostomy with Retracted Mesocolon. (Gastro-entérostomie postérieure anté-colique.) P. Mauclaire.

61. **Dislocation of the Joint Between the Trapezium and the Metacarpal Bone of Thumb.**—Regnault gives the history of this dislocation as presented in the literature and describes a plaster mitten devised to correct it. In twenty-two cases he has compiled, including two from his own experience, the dislocation was backward and incomplete and there was no fracture; in fourteen cases there was complete dislocation without fracture; eight cases in which the luxation was complicated with a Bennett fracture and other cases bring the total to fifty-three. Few of the patients have been seen since, so that the question as to facile recurrence of the dislocation is still undecided. To ward off recurrence it is wise to keep up treatment a long time and warn the patient of the possibility of recurrence.

Archives Internationales de Chirurgie, Ghent

VI, No. 2, pp. 135-252. Last indexed May 10, p. 1497

64 Operation for Cancer of the Larynx. (Carcinoma della laringe; atrofia della glandola tiroide. Laringectomia e plastica esofagea.) G. Perez. (Pavia, Italy.)
65 The Parathyroid Glands with Ordinary and Exophthalmic Goiter. T. Iversen. To be concluded.
66 Tuberculosis of the Nipple. F. Putzu. Commenced in V, No. 6.

Archives de Médecine des Enfants, Paris

October, XVI, No. 10, pp. 721-800

67 *Kala-Azar in Italy; 102 Cases. (L'anémie par leishmania.) R. Jemma.
68 Megacolon. (Maladie de Hirschsprung.) A. Mamrot.

67. **Kala-Azar in Italy.**—Jemma states that the disease was described in Italy as early as 1880, under the name of infectious *infantile pseudoleukemia or infectious splenic* anemia. It is the work of Leishman's parasite, and it attacks mostly young children. The younger the child the more rapid the course; recovery is very rare. Only three of ninety of his patients recovered, but in six the outcome has not been determined. He adds that the recovery was spontaneous in the three cases with a favorable outcome and can scarcely be credited to the iron, arsenic and roentgenotherapy applied. Vaccine therapy proved useless, and nothing can be hoped from splenectomy as the parasites are not localized exclusively in the spleen.

Journal de Médecine de Bordeaux

October 5, LXXXIV, No. 40, pp. 637-652

69 *Jaundice Following Abortion. Andérodias and Drouin.

69. **Jaundice Following Abortion.**—The first patient had puerperal septicemia favored by a recent influenzal attack. The jaundice was accompanied by slight rigidity of the back of the neck and Kernig sign, exaggerated reflexes, epistaxis, mild diarrhea and phlebitis of the left leg, but recovery gradually followed. The other patient was a II-para of 24, who induced the abortion herself with an ivory catheter through which she injected a little hydrant water into the uterus. The next day she had chills, vomited, and noticed that her skin had "turned all yellow." There were also severe abdominal pains and diarrhea. The uterus was curetted and an abscess of fixation was applied. Intense pruritus, hemorrhages from nose and vagina, hemoglobinuria, delirium and other symptoms of uremia grew gradually worse, the patient dying the seventh day, persistently refusing to permit an operation on the kidney. Necropsy showed necrotic nephritis and also patches of inflammation in the liver. In the first case the low urobilin content in the urine had indicated that the prognosis was not so grave as the various symptoms had seemed to suggest, and this assumption was confirmed by the prompt recovery.

Lyon Médical, Lyons

September 28, XLV, No. 39, pp. 489-528

70 Chronology of Dentition. A. Pont and P. Trillat.

October 5, No. 40, pp. 529-564

71 Natural and Experimental Parthenogenesis. P. Aubert.

Presse Médicale, Paris

October 1, XXI, No. 80, pp. 793-800

72 Sporothricosis Simulating Tuberculous Process in Bone or Lung. C. Laurent.
73 Functioning of the Ductless Glands in the Fetus. (Importance des fonctions endocrines pendant la vie embryonnaire et foetale et sur leur rôle dans l'organogenèse.) C. J. Parhon.

Semaine Médicale, Paris

October 1, XXXIII, No. 40, pp. 469-480

74 *Diagnosis of Effusion in the Pericardium, and Puncture through the Epigastrium. A. B. Marfan.

October 8, No. 41, pp. 481-492

75 Venom Activation and its Diagnostic Significance. (Réaction d'activation du venin du cobra; sa fréquence au cours des maladies mentales; sa valeur prognostique chez les paralytiques généraux et les déments précoces.) M. Klippel and M. P. Weil.

74. **Diagnosis of Effusion in the Pericardium.**—Marfan remarks that none of the signs of effusion in the pericardium are absolutely reliable. The most instructive are the enlargement of the area of dulness over the heart and its change from a triangular to an ovoid or dome shape and the absence of pulsation seen at the edges; pulsus paradoxus; difficulty in swallowing; the pseudopleuritic findings at the left base, pronounced as the patient stands, diminishing in the knee-chest position, and the crowding down of the liver. A positive differential diagnosis is possible only by puncture. With the usual technics, puncture is inconvenient and dangerous, but it is very simple and easy and leaves the pleura and peritoneum

intact if the needle (a 6 or 8 cm. long lumbar-puncture needle) is introduced just below and close to the xiphoid appendix on the median line. The tip is slanted upward and kept as close to the rear of the xiphoid appendix and the sternum as possible, the handle pressed down on the abdomen more and more as the needle is pushed in, the needle thus pushed along the bone as if to shave it. The tip enters the pericardium at a depth of about 4 cm. in children under 5, and 6 cm. in adults. The needle traverses the cellular fat tissue between the points of attachment of the diaphragm to the sternum, not touching the muscle, and enters the pericardium at the lowest point, where all the fluid can be most readily siphoned out. This epigastric puncture of the pericardium has been done since 1911 twenty-six times on eight patients, and always with the best results. In case of tuberculous pericarditis with effusion, pericardotomy may occasionally be preferable, and it is always better when the effusion is purulent unless the process is tuberculous; in this case repeated puncture may be better as pleurotomy in purulent tuberculous pleurisy generally proves disastrous. With all other effusions in the pericardium, the epigastric puncture, repeated as needed, is the logical and harmless treatment. He reports a case of purulent tuberculous pleurisy in which complete recovery followed nineteen simple punctures.

Archiv für klinische Chirurgie, Berlin

CCII, No. 2, pp. 309-562. Last indexed Oct. 11, p. 1410

76 •Operative Treatment of Brain and Spinal Cord Tumors; 183 Cases. (Hirn- und [illegible] .) A. v. Eiselsberg and E. Ranzi. [illegible].) P. Rabitzki.
77 Experimental Suppurative Arthritis. (Experimentelle Untersuchungen über eitrige Gelenkentzündungen.) G. Magnus.
78 •Omentum Flaps in Hemostasis in Operations on the Liver. (Blutstillung bei Leberwunden durch gestielte und freie Netzlappen.) P. Jacquin.
79 Nail Extension. (Zur Mechanik der Nagelextension.) T. Christen.
80 Foreign-Body Cysts. (Fremdkörpercysten.) E. E. Pribram.
81 Incarcerated Intraparietal Inguinal Hernia. (Hernia dystopica inguino-inguinalis incarcerata.) Esau.

76. Brain and Spinal Cord Tumors.—Of the 168 patients operated on under the diagnosis of "brain tumor" at von Eiselsberg's clinic, the lesion was in the cerebrum in seventy-five; in the hypophysis in sixteen; in the cerebellum in thirty-two and in the pontine angle in seventeen, while in twenty-eight cases the intervention was restricted to making a safety valve without ascertaining the exact site of the tumor. Forty operations were done on the spine, for tumors in seventeen cases, fracture of vertebrae in six, for spondylitis in two, and for spastic paralysis in fifteen. The details of all the cases are given, with nineteen diagrams; the article fills 159 pages. The site of the tumor had been correctly located in forty-six of fifty-seven cases of brain tumor. In one case a tumor was located but operation revealed multiple gliomas; the absence of the abdominal wall reflexes in this case might have warned that the trouble was of a more diffuse nature. In another case the local tenderness to tapping led to assumption of a compressing process in the angular gyrus, but the tumor was found at the junction of the hemispheres. In another, local tenderness indicated a single lesion but a bilateral affection was indicated by the tendency to fall over backward and to the left and by incontinence in respect to both urine and feces. A process in the central convolution was the diagnosis in one case; as it was exposed the fluid spurted. The trouble was attributed to circumscribed serous meningitis and no further search was made. Necropsy revealed a fibroma in the region of the acoustic nerve which could easily have been shelled out; the coincidence of the two processes was probably merely casual. A glioma in the optic thalamus had caused absolutely no symptoms of the quadrigeminal area, only symptoms suggesting compression in the inferior cranial fossa, ataxia, absence of the corneal reflex, diminished palate reflex, hemiparesis and vomiting of coffee-ground masses. Among the mistakes of the surgeon were the overlooking of a tumor and failure to recognize a diffuse glioma. This latter mistake teaches the necessity for making frozen sections during the operation when the findings are dubious. Choked disk did not accompany the tumor in the brain in every instance. If the cochlear and the vestibular nerves are dead to stimuli, this is generally pathognomonic of a tumor in the cerebellopontine angle as a rule, but this sign failed in one of the cases reported. If more attention had been paid to the ear findings in the diagnosis of abnormally high intracranial pressure and in local diagnosis, some of the mistakes might have been avoided, especially with tumors supposed to be in the posterior cranial fossa.

The patients are prepared with hexamethylenamin and, if the blood shows low coagulating power, calcium lactate is given for a few days. The tendency is more and more to operate at two sittings and to turn back larger flaps, sacrificing at need patches of the dura as large as a man's palm, closing the gap with fascia lata from the thigh. No draining or tamponing. Sixteen of the patients succumbed to postoperative meningitis; it might possibly have been avoided in some of the cases if fascia substitution had been applied. It appears from the tables that twenty-seven of the patients were cured and twenty-five improved in the intracranial operations, and three cured and sixteen improved in the operations on the spinal cord.

78. Omentum Flaps for Arresting Hemorrhage from the Liver.—Jacquin states that a pedunculated flap of omentum is easily obtained and it proved absolutely effectual in dogs after resection of large portions of the liver.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XVIII, No. 3, pp. 307-446. Last indexed July 5, p. 69

82 •Malpractice in Connection with Abortion. (Der fahrlässige Abort.) A. Hegar.
83 Hernia of the Female Genital Organs. (Die Leistenhernien der weiblichen Geschlechtsorgane. Hernien-Adnexitiden.) C. Daniel.
84 Histology of Carcinoma of Uterine Cervix. B. Liegner.
85 •Course of Delivery with Occipital and Dorsal Meningoceles. M. Kröner.
86 •Urine Fistulas. K. Minakuchi.

82. Malpractice in Connection with Abortion.—The Niebergall case has attracted considerable attention abroad, and Hegar discusses the lessons to be learned therefrom. The case concluded with the conviction of Dr. Niebergall for having contributed to bring on abortion by using a catheter in examining the uterus of a young girl, only 15, who complained of abdominal pains and stated that menstruation had always been irregular and scanty. He made an examination, using a catheter; it entered for more than 7 cm. and he withdrew it and asked if pregnancy were possible. Five days later, in lifting a heavy bed, the girl was seized with pains and after four days aborted. Prof. von Herff accused Niebergall of criminal abortion as the head of the fetus showed an abrasion. Hegar expatiates on the serious consequences liable with abortion under all circumstances. Even with therapeutic laminaria abortion, Aschoff found pronounced catarrhal changes in the tubes in 55 per cent. of thirty-eight cases. In one instance pus was found in the abdominal cavity. The traces of such changes as these may have serious pathologic results earlier or later even when the abortion was induced in a hospital with scrupulous care. Hegar comments on the peculiar injury it is to a physician to come into conflict with the authorities at any time and for any cause. Even when proved absolutely guiltless, some smirch still clings to him, so he urges all to suspect always a possible pregnancy, even when it is wildly improbable, and never use the sound or catheter in examining a woman in the child-bearing age. The point on which he specially insists is that in the cases which might lead to criminal abortion, it really is immaterial to learn at once whether the woman is pregnant or not. Under all such circumstances waiting a little will do no harm. On the other hand, with malignant tumors and constitutional disease, the child's chance for viability is so small that the fetus need not be taken into account. At two months a pregnancy can be diagnosed with certainty by examination without instruments, although general anesthesia may sometimes be required for it. He scarcely ever found occasion to use a catheter in exploratory examination in the later decades of his practice, and his pupils avoid its use likewise.

85. **Meningocele Interfering with Delivery.**—Kröner reviews eighteen cases; in ten there had been deflexion presentation and this group he summarizes in detail. The data show that occipital meningoceles frequently entail frontal or face presentation; sometimes a transverse face rotates around the symphysis. With a meningocele at the back of the neck, presentation occurs generally as a deflexion presentation; delivery can occur only by a change to occipital presentation.

86. **Urine Fistulas.**—Minakuchi tabulates the details of forty-five cases from the Tübingen gynecologic clinic, including eleven in which the ureter was involved; the others were in the bladder. In fifteen cases the fistula was the result of obstetric injury; in twelve, of operative injury. The results of operative measures applied are also tabulated; 91.3 per cent. were cured and all were much improved of the bladder cases, but only three were cured in six ureter cases and one improved.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXVIII, No. 2, pp. 155-350. Last indexed Oct. 25, p. 1578

87 *Therapeutic Pneumothorax. (110 Fälle von künstlichem Pneumothorax und die daran gemachten *Beobachtungen.*) Zink.
88 *Graduated Tuberculin Skin Test in Prognosis. H. Kögel.
89 *Tuberculin Reaction in the Non-Tuberculous. (Ueber Organreaktionen mit Kochschem Alttuberkulin bei klinisch Nichttuberkulösen, mit bes. Berücksichtigung der asthenischen und rheumatischen Erkrankungen.) E. Sons.
90 Tubercle Bacilli in the Blood-Stream. Kachel.
91 Secondary Tuberculosis. E. Kahn.

87. **Therapeutic Pneumothorax.**—Zink writes from the Basel sanatorium at Davos to describe his experiences with artificial pneumothorax applied in 110 cases. He devotes thirty-seven pages to tabulation of the details, with diagrams of a number of the cases. He was able to accomplish the purpose of an effectual pneumothorax in eighty-one patients; the lung was completely compressed in thirty-five, while in forty-six, adhesions interfered to some extent. The adhesions generally stretched in time so that the therapeutic effect was finally attained. His experience teaches that nontuberculous affections of the lung and bronchiectasia are not suited for this treatment. Emphysema and asthma are also contra-indications, as also non-tuberculous disease of the kidney or heart or other organs. With tuberculous intestinal disease, it is better not to attempt the pneumothorax treatment but laryngeal tuberculosis does not contra-indicate it, but may even heal under its influence. The field of pneumothorax treatment is in all chronic destructive, tuberculous processes with a tendency to fibrous degeneration and cavity formation, restricted to one lobe; also in all severe acute infiltrating and cheesy-pneumonic forms; also in the chronic infiltrating forms without much destruction if they are of a progressive character or show no tendency to retrogression under prolonged treatment by other means. With an isolated tuberculous process in the lower lobe, there is generally bronchiectasia which renders the outlook graver; the decision must be made from case to case. With severe and recurring hemoptysis, the pneumothorax may be justified even with tuberculous involvement of the other side, but otherwise active tuberculosis of the other side contra-indicates this method of treatment. Small stationary processes in the upper lobe of the other lung do not contra-indicate the method but when the lower lobe is diseased it is better to refrain.

88. **Graduated Tuberculin Test.**—Kögel extols the method of the graduated tuberculin test, according to Ellermann and Erlandsen's technic (described in THE JOURNAL, 1909, lii, 1.634). The findings are particularly instructive for prognosis. An active response is generally a good sign, especially when the outlook is dubious. Repeated application of the graduated test also proves an instructive guide to treatment.

89. **The Organ Reaction to the Subcutaneous Tuberculin Test.**—Sons applies the term "organ reaction" rather than "focal" or "local" as this term includes a system of organs, such as the joints, for instance. He emphasizes that the organ reaction is the most instructive, the most impressive and the most reliable sign of the localization of tuberculous disease. He has made a special study of the organ reaction in a number of nontuberculous abnormal conditions, especially asthenia universalis and rheumatic arthritis, as well as in the tuberculous. In seventeen cases of the asthenic syndrome, including anemia, chlorosis and neurasthenia, a pronounced febrile general reaction to the classic tuberculin test was obtained in twelve cases. In one case of acute articular rheumatism a strong reaction was obtained, general and at the point of injection, and also in nearly all the joints. In twelve cases of chronic rheumatic polyarthritis there was a general and febrile reaction in seven cases but weaker than in the preceding group; in the five other cases there was no general reaction but an unmistakable reaction in the joints. The test applied in five cases of neuralgia and one of spinal paralysis gave only one organ reaction, and positive reactions of all kinds in the paralytic. In nine tuberculous patients the reaction was negative in the old healed cases and there was no organ reaction in one case of apical tuberculosis without bacilli in the sputum. In six cases of other affections, not tuberculous, no organ reaction was obtained but a general reaction was evident in the three diabetics. These findings point to a possible tuberculous origin in many cases of asthenia universalis and of rheumatism, both acute and chronic.

Beiträge zur klinischen Chirurgie, Tübingen

August, LXXXVI, No. 1, pp. 1-263

92 *Firearm Wounds of the Heart; Two Cases. R. Häcker.
93 *Fascia Grafts. (Der gegenwärtige Stand und die nächsten Aussichten der autoplastischen, freien Fascien-Uebertragung.) M. Kirschner.
94 Absorption in the Pericardium. (Ueber Herzbeutelresorption.) *Boit and C. L. Gorinstein.*
95 Diagnosis of Tumors in Stomach Wall. (Ueber primäre Myosarkome des Magens und die diagnostischen Schwierigkeiten *der Magenwandtumoren.*) R. Amelung.
96 Permanent Artificial Anus. (Anus praeternaturalis definitivus.) W. Carl.
97 Mesenteric Lipomas. A. Ebner.
98 Dermoid Cysts in the Mesentery. (Dermoidcyste zwischen den Blättern der Mesoappendix.) W. Willems.
99 *Operative Treatment of Hemoptysis. (Pleuropneumolysis thorakoplastica.) G. Lischkiewitsch.
100 Experimental Immobility of the Mediastinum and Its Therapeutic Import. (Bedeutung der Mediastinalstarre und ihre künstliche Erzeugung.) A. Menzel.

92. **Diagnosis of Injury of the Heart.**—Häcker says that if a firearm or stab-wound of the heart is not fatal at once, it permits calm examination of the patient and his being carried to the hospital if not too far away. He reports two cases instructive from the standpoint of diagnosis. In one a bullet in the skull complicated matters, and there was no sign of accumulation of blood in the pericardium pressing on the heart, and the outline of the heart was normal on roentgenoscopy. Several hours had elapsed before the man was first seen and yet the pulse was fairly regular and there was none of the cyanosis of the face usual with injury of the heart. Roentgenoscopy, however, showed that the bullet must have passed through the heart and necropsy confirmed this to have been the case but not a drop of blood had escaped. The bullet holes must have closed up at once by a valve-action. The bullet in the brain may have cooperated in slackening the action of the heart. In the second case the bullet was seen by roentgenoscopy inside the shadow of the heart and it moved with the heart beat, but it caused no symptoms and the patient was discharged in less than a month free from all disturbances. The bullet evidently must be in the pericardium and it did not enter the heart proper.

93. **Fascia Grafts.**—Kirschner has been one of the pioneers in autoplastic fascia operations, and he here gives a detailed and profusely illustrated account of his experiences. He emphasizes the superiority of the autograft technic and the superior advantages of fascia tissue for the purpose. The number of different ways in which strips or sheets of fascia tissue can be utilized in this way is surprising. The list includes the bridging of gaps in tendons by a tube of fascia sutured over the stumps, correction of paralysis of the eyelids and other muscles of the face, correction of flat-foot and habitual dislocation of the knee-joint and shoulder, fixation of kidneys and testicles and the use of the fascia rings to close the lumen of the intestine or correct prolapse of the rectum, and to serve as suture material. The list of uses to which sheets of fascia have been applied includes all kinds of hernia

operations, covering defects in the pleura, dura and in hollow organs, arresting hemorrhage in parenchymatous organs, in reenforcing the walls of vessels inclined to aneurysm, curing stiff joints, covering the stump after an amputation, and isolating a certain segment of a peripheral nerve. Kirschner states that no damage from the use of the fascia has been noticed in any instance, and in many cases it permitted operations absolutely impossible with any other material or method. He concludes his long article with the literature on the subject.

99. **Operative Treatment of Hemoptysis.**—Lischkiewitsch states that the intervals since up to five years in his twelve cases testify to the advantages in certain cases of rebellious hemoptysis of measures to compress the lung, and especially what he calls thoracoplastic pleuropneumolysis. *None of the patients have had any hemorrhage from the lungs since, nor any of the eleven operated on since 1911.*

Berliner klinische Wochenschrift

September 29, L, No. 39, pp. 1789-1836

101 *Duodenal Ulcer. C. A. Ewald.
102 *Symptoms of Adhesive Pericarditis. J. Tornai.
103 Application of Diathermia in Medicine. (Die medizinischen Anwendungen der Diathermie.) J. Bergonié. (Die wissenschaftlichen Grundlagen der *Thermopenetration—Diathermie.*) R. v. Zeynek.
104 Segregation of Venous Blood in Treatment of Circulatory Disturbances. (Die Phlebostase als physikalisches Heilmittel bei Kreislaufstörungen.) Lilienstein.
105 Electric Treatment of Tuberculosis of Nose, Throat and Larynx. (Behandlung der Nasen-, Rachen- und Kehlkopftuberkulose mit Hochfrequenzströmen.) Albanus.
106 Radiotherapy of Tumors. (Zur Strahlentherapie der Geschwülste.) B. Keetman.
107 Abnormal Psychic States in Epileptics. A. Münzer. Commenced in No. 38.
108 Luetin Skin Reaction in Syphilis. (Die Cutanreaktion von Noguchi bei Syphilis.) A. Fagiuoli and V. Fisichella.
109 Vaccine Therapy of Gonorrhea. K. Klause.
110 Serology of Gonorrhea. J. Finkelstein and T. Gerschun.
111 Chemical Composition of Nissl's Granules in the Ganglion Cells. M. A. Herwerden.
112 *Holmes and Semmelweis. P. Richter.

101. **Duodenal Ulcer.**—Ewald has encountered in the last three and a half years 532 cases of gastric and eighty-two of duodenal ulcer. He found blood in the stools the most constant sign of the latter; it was present in every case with one exception, but not always at the first examination. He declares that about 50 per cent. of all duodenal ulcers are amenable to medical treatment. On the other hand, operative treatment has its drawbacks; in one case the patient had a severe hemorrhage from the duodenal ulcer two months after it had been treated by gastro-enterostomy. He advised an operation only in eighteen of his eighty-two cases.

102. **Adhesive Pericarditis.**—Tornai calls attention to a symptom of adhesive pericarditis which he noticed very pronounced in a case described in detail. Just over the center of the left costal arch the wall sank in during inspiration over an area as large as one's hand. This circumscribed sinking in of the wall showed *pronounced pulsation* in this case, but in certain others the pulsation did not become evident until the patient drew a deep breath. Retraction of the chest wall is not pathognomonic, as pleuritic adhesions may cause this funnel-shape of the chest during inspiration. But when the retraction is thus *circumscribed* along the left costal arch, between the parasternal and anterior axilla lines, and it pulsates, he regards it as pathognomonic of adhesive pericarditis. The pulsation is synchronous with the carotid pulse. The best way to examine for retraction of the wall is to lay one hand on the lower part of the sternum, the other hand on the spine opposite; then as the patient takes a deep breath we can feel that the chest grows narrower between our hands, and we can perceive the characteristic pulsation, the systolic retraction, much more distinctly than with simple palpation. The preference of the edema for the upper part of the body is also characteristic. Still another sign is the paradoxic engorgement of the veins in the neck during inspiration; they may show plainer during inspiration than at other times. He thinks that tuberculosis is frequently involved in the production of adhesive pericarditis. Roentgenoscopy may show that the entire heart moves with the excursions of the diaphragm.

112. **Holmes and Semmelweis.**—Richter states that not only Holmes but others before Semmelweis had established the transmissibility of puerperal fever, but Semmelweis' great work lies in his insisting that puerperal fever is not a mysterious *infection* but is the work of every-day germs, and that he did not restrict himself to theorizing but put his conceptions into actual practice in the face of immense opposition.

Deutsche medizinische Wochenschrift, Berlin

October 2, XXXIX, No. 40, pp. 1921-1968

113 *Local Treatment of Contact Ulceration Following Intubation. J. v. Bokay.
114 *Nature of Diabetes. (Die Theorie der menschlichen Zuckerkrankheit.) E. Frank. (Der Natrium- und Kaliumstoffwechsel beim Diabetes *mellitus.*) S. Cohn.
115 Pharmacologic Research on Anesthetics. (Ueber Chloroform- und Aethernarkose, den Wert von Narkoseapparaten und die Unterstützung der Inhalationsnarkose durch Morphin, Skopolamin und einige Schlafmittel.) M. Kochmann.
116 Efficacy of Venesection plus Saline-Epinephrin Injection in a Case of Pneumonia. (Zur
bei Pneumonie mit Aderlas
sung.) Lonhard.
117 Differential Diagnosis of Echinococcus Disease of the Lung. Guischard.
118 Chemistry of the Protoplasm and Cell Nucleus. O. Gans.

113. **Local Treatment of Contact Ulceration Following Intubation.**—Bokay states that 69.86 per cent. recovered of the 657 children with laryngeal diphtheria in his service since 1900 requiring intubation. He never did primary tracheotomy, but *secondary tracheotomy became necessary in thirty-one* cases. In fifty-one cases the throat ulcerated under the tube, but this healed in all under local treatment with alum applied on O'Dwyer's special tube made with a low retaining swell, coated with gelatin mixed with alum. The regular ebonite tube had been *in place for from sixty to 294 hours in these* cases, but the decubitus healed under the medicated tube in an average of 113 hours. In twenty-one other cases secondary tracheotomy became necessary in spite of the medicated tube and eleven of the group recovered. Bokay quotes Shurley's *similar favorable* experience with tubes coated with saturated alum (The Journal, 1912, lix, 1123), and mentions some German clinicians who have also used the medicated post-intubation tubes. If O'Dwyer's directions are scrupulously followed, he says, the results are invariably excellent.

114. **Nature of Diabetes.**—Frank writes from Minkowski's clinic to suggest that diabetes may be regarded as the pathology of glycogen. Cohn presents evidence to show that in diabetes the salt *metabolism* is abnormal in that there is a deficiency in sodium and an excess of potassium. The cause of this disturbance is defective functioning on the part of glands, the pancreas in particular, which are storers-up of potassium. Treatment should aim to restore the normal balance between these salts. This has been empirically done by giving oatmeal to diabetics. Oatmeal ash contains 4.30 per cent. sodium to 23.73 per cent, potassium, while *wheat* flour has respectively 0.76 and 34.43 per cent., and rye flour 1.75 and 38.44 per cent. The proportion of sodium to potassium in oatmeal is thus 1 to 5.5 while with wheat flour it is 1 to 45 —a difference enough to explain the benefit derived from oatmeal in diabetes.

Cohn has previously presented evidence to the effect that an important contributing factor in gout is likewise a disturbance in the metabolism of sodium and potassium. In gout, however, *it is the* sodium *proportion* that is *abnormally* large and the *potassium* abnormally low—just the reverse of what he has found to be the case *in* diabetes. The organ in charge of the reserves of potassium, the pancreas, has become functionally incompetent, and potassium should be systematically administered. Among the facts he cites to sustain *this* theory is his finding that the blood in the pancreatic artery, thus entering the pancreas, contained an average of 0.108 per cent. sodium to 0.014 potassium; the blood in the pancreatic vein, on the other hand, just emerging from the pancreas, contained only 0 094 *per cent.* sodium to 0.027 *per* cent. potassium.

To the objection that the total proportion *of the* salt in the *body* is so small as to be negligible, he replies that recent research has demonstrated the unsuspected importance of even minute proportions of certain *cell constituents*—even a single ion may in some circumstances decide the life or death of the cell. He enumerates as follows the points which speak in favor of the assumption that the diabetic is *suffering from* an excess of potassium and lack of sodium: (1) the frequent occurrence of free uric acid in the urine; (2) Rumpf and Dennstedt's finding of 0.2 sodium to 4.1 potassium in the ash of a diabetic's liver when normally both are about 1.5; similar findings were encountered in numbers of others; (3) accelerated ferment activity of the pancreas enzyme in contact with potassium salts; (4) the close resemblance between the symptoms of potassium poisoning and those of diabetes, especially the development of glycosuria after augmented intake of sodium; (5) increased potassium content of the urine in diabetics; (6) the resemblance between diabetic coma and the heart failure in potassium poisoning, and (7) Loewi's recent experiments with animals rendered diabetic showing that the diabetic heart muscle is extraordinarily sensitive to potassium. Cohn says in conclusion *that his encouraging* clinical experience with treatment on this basis has also confirmed the correctness of his premises.

Medizinische Klinik, Berlin

September 28, IX, No. 39, pp. 1575-1616

119 High Mortality of Appendicitis during Pregnancy and Its Causes. H. Füth.
120 Morphin and Cocain Addiction. A. Friedländer.
121 Treatment of Eclampsia. (Wert der "Therapie der mittleren Linie" bei der Behandlung der Eklampsie.) F. Engelmann.
122 Tuberkulosis and Appendicitis. J. Schnitzler. Commenced in No. 38.
123 Abnormal Ligaments Binding the Gall-Bladder; Three Cases. (Ueber anomale ligamentare Verbindungen der Gallenblase und ihre klinische und pathologische Bedeutung.) G. E. Konjetzny.
124 *The Oil Test-Breakfast. (Das Oelprobefrühstück beim Icterus* catarrhalis und Ulcus duodeni.) J. Matko. Commenced in No. 38.
125 Mortality of Sick Infants soon after Reaching the Hospital. (Zur Frage der Sterblichkeit kranker Säuglinge in den ersten Tagen des Anstaltsaufenthalts.) H. Putzig.
126 The Thymic-Lymphatic Constitution and the Shape of the Epiglottis. R. Landesberg. Commenced in No. 38.
127 Balneology with Heart Disturbance of Gastric Origin. (Der gastrokardiale Symptomenkomplex und seine Behandlung im Bade.) F. Meyer.
128 The Olfactometer. H. Günther.
129 *Insomnia. (Zur Therapie der Schlaflosigkeit.) E. Ebstein.
130 *Determination of Ammonia in the Urine.* (Zur Abkürzung der Ammoniakbestimmung im Urin nach Krüger-Reich-Schittenhelm.) A. Hahn.

129. **Insomnia.**—Ebstein reiterates that during the waking hours the supply of blood to the head is controlled by the erect position but on reclining, gravity aids in keeping the brain unusually well supplied with blood. This of course is liable to prevent sleep, and he thinks that measures may be devised which will counteract this to some extent. The blood in the arms—as the arms usually lie in bed—meets and combats the blood flowing from the brain, the stronger stream from the arms choking back the stream of blood coming from the brain. To counteract this, he advises a patient *inclined to* sleeplessness to grasp with his hands the head of the bed about eight inches above the pillow. If there is nothing there that can be grasped, a towel can be tied tight across which the hands can seize not lower than eight inches above the pillow. The body is slipped down in the bed so that the arms are thus held sloping upward above the head. By this means the blood-stream flowing down from the arms, with the velocity of the greater drop, helps to aspirate the blood from the brain instead of fighting against it. When the position becomes too wearisome, the wish to change the position must be combated *at first. Only when the desire* becomes imperative is it abandoned and the body turned with as little effort as possible into the attitude in which one habitually drops to sleep.

Münchener medizinische Wochenschrift

September 30, LX, No. 39, pp. 2153-2208

131 Tuberculosis at Different Ages. K. E. Ranke.
132 Hyperglycemia Following Intravenous Injection of Sugar. (Experimentelle Hyperglykämie beim Menschen durch intravenöse Zuckerinjektion.) S. J. Thannhauser and H. Pfitzer.
133 The Diastase Content of the Feces. H. Rotky.
134 *The Bile Pigments in the Fetus and Newly Born. (Icterus neonatorum und *Gallenfarbstoffsekretion* beim Fötus und Neugeborenen.) A. Ylppö.
135 Tests of Ovary Functioning. (Funktionsprüfungen der Ovarialtätigkeit.) R. Keller.
136 *Abderhalden's Test *Applied to Gastro-Intestinal* Tract. (Diagnose der Magendarmaffektionen mit Hilfe des Abderhaldenschen Dialysierverfahrens.) B. T. Kabanow.
137 *Stimulation of Plant and Animal Growth by the Roentgen Rays. (Der Wachstumsreiz der Röntgenstrahlen auf pflanzliches und tierisches Gewebe.) E. Schwarz.
138 *Improvised Superheated Air Apparatus. H. Schmerz.
139 *Psychical Epileptic Equivalents. (Kurze Bemerkungen über Dämmerzustände.) A. Heidenhain.
140 The Antitryptic Action of the Blood-Serum. E. Rosenthal.
141 The Blood-Serum in Gout. R. Ehrmann and H. Wolf.
142 *Abderhalden's Test in Disease of the Thyroid. (Serologische Untersuchungen mit Hilfe des Abderhaldenschen Dialysierverfahrens bei Gesunden und Kranken. Spezifität der Abwehrfermente.) A. E. Lampé and R. Fuchs. Commenced in No. 33.
143 The Physician Must Learn not to Let Himself Be Imposed Upon by His Patients. (Die Hohe Schule für Aerzte und Kranke. Der Arzt als Dirne. Der Arzt als Sklave.) M. Nassauer.
144 Determination of the Blood-Pressure. (Blutdruck und *Blutdruckmessung.)* L. Saathoff.

134. ***Jaundice in the New-Born.**—Ylppö* has worked out a method for studying the secretion of bile pigments in the fetus, etc., and states that the fetal liver allows bile pigments to pass into the blood. Icterus neonatorum is consequently a physiologic and uniform phenomenon, although at times it may reach a pathologic intensity.

136. **The Abderhalden Test in Diagnosis of Gastro-Intestinal Trouble.**—Kabanow states that he has applied the test with preparations made from various portions of the gastro-intestinal tract, portions which seem to be physiologically and anatomically independent of each other. He thus applied the test with preparations made separately from the fundus, the pylorus, the duodenum, small intestine, large intestine and appendix, and tabulates the details of sixteen cases. It is remarkable to note the positive reaction to the special organ tissue involved, and the lack of any reaction in presumably purely nervous affections. One table reports the *findings in* four cases of pernicious anemia; the reaction was positive to stomach and small intestine tissue in one case; to the latter alone in two others, and there was no reaction in the case of a patient who had entirely recovered from the anemia. The only contradictory finding was in a case of acute gastritis. The test was applied the third day and there was no reaction, evidently because the ferments had not yet had time to appear in the blood.

137. **Influence of Roentgen Rays on Growth of Plant and Animal Tissue.**—Schwarz reviews what has been done in this line to date, and gives an illustrated description of his own positive research with green beans exposed to the Roentgen rays from half a minute to five minutes and then planted. He aimed to keep the exposure at the lowest possible dosage to obtain an influence on growth. The results were so strikingly positive that he applied the same technic to granulating wounds, covering half the wound with a sheet of lead and exposing the other half at three or five day intervals to a soft tube of about 2 DMa for about five minutes at a distance of 30 cm. Similar experiments with the ears of rabbits confirmed the stimulating influence of the Roentgen rays on tissue growth.

138. **Improvised *Apparatus for Superheated Air.*—Schmerz** makes a cylinder or tunnel of chicken wire-fencing and winds it with a plaster bandage, coating it thick on both sides with plaster. He makes an inner screen in the same way, and introduces into the appliance a small stove-pipe. The same principle can be applied with cement. The apparatus thus made answers every purpose for the application of superheated air.

139. **Treatment and Prevention of Psychical Equivalents of Epilepsy.**—Heidenhain is convinced *that the* chief factor is a nervous contraction of the blood-vessels in certain parts of the brain. This can be combated by inhaling amyl nitrite, and he advises that persons inclined to epilepsy should carry constantly a small bottle of amyl nitrite on their persons

and at the first sign of trouble inhale a few drops poured into a cup or glass. The family might also be instructed to administer the amyl nitrite if the individual himself is not able to do it. Heidenhain has had two patients whom he was able to bring out of the recurring epileptic condition of imperfect perception and understanding (*Dämmerzustände*) by repeated inhalation of amyl nitrite. Migraine is also frequently amenable to inhalation of amyl nitrite as this, too, is traceable to cramp of the vessels in the brain. He says that amyl nitrite is so simple and harmless that epileptics should be encouraged to use it more, even between attacks.

142. **Abderhalden's Test in Disease of the Thyroid.**—Lampé and Fuchs applied this test in sixty cases of abnormal thyroid functioning and they found that serum from patients with exophthalmic goiter or basedowoid induced a constant positive reaction with tissue from the thyroid of a person with exophthalmic goiter. In a few instances their serum digested also thymus and ovary or testicle tissue. The serum of the myxedematous had likewise the power to disintegrate ordinary thyroid tissue. This was also the case with serum from patients with endemic goiter. The ferments elaborated in these conditions seem to be specific to an extreme degree.

Petersburger medizinische Zeitschrift

September 28, XXXVIII, No. 18, pp. 215-226

145 Tuberculin Therapy by Koch-Petruschky Technic. P. Bergengrün.
146 Relations Between Indol and Indican in the Urine. W. v. Moraczewski.

Wiener klinische Wochenschrift

October 2, XXVI, No. 40, pp. 1601-1644

147 Chlorosis and the Heart. (Ueber Anämien. II.) E. v. Neusser.
148 *Hemolysis with Congestion of the Spleen. (Hyperspleniscbe Hämophthisen und Stauungsmilz.) B. O. Pribram.
149 *Differentiation of Diphtheria and Pseudodiphtheria Bacilli. Markl and F. Pollak.
150 Living Spirochetes in Progressive Paralysis. H. Geber and L. Benedek.
151 *Syndrome from Functional Adrenal Insufficiency. (Bradykardie, Hypotonie, niedere Körpertemperatur, eigenartige Muskelschwäche, Neigung zu Ohnmachten.) E. Hoke.

148. **Hemolytic Anemia from Congestion in the Spleen.**—Pribram reports extensive research on dogs which showed that urobilinuria could be readily induced by causing congestion in the spleen; the appearance of urobilin in the urine is the only sign known to date indicating abnormally increased destruction of blood-corpuscles. It proved impossible to induce the urobilinuria in other ways, not even by intravenous injection of substances known to be directly destructive to the blood. Further experiments showed that stasis in the inferior vena cava, such as occurs with uncompensated valvular lesions, leads to urobilinuria to an intense degree. He has never encountered a clinical case of isolated stasis in the spleen with exaggerated destruction of red corpuscles and consecutive anemia and urobilinuria, but a number of such cases have been described in the literature. All the patients had varicose enlargement of the splenic vein and its branches and their course was extremely tortuous; sometimes the vein was kinked and actual varicose tumors developed in the hilus of the spleen. The spleen was always much enlarged but generally there were no other pathologic findings except possibly slight cirrhosis of the liver, but all the patients showed signs of *abnormal destruction of* blood, anemia and urobilinuria. The most remarkable feature in the cases is that the patients are young and the vascular apparatus elsewhere seems normal. Pribram thinks that this syndrome of varices in the splenic vein with extreme congestion in the spleen and destruction of the reds must be regarded as a special affection *sui generis.* He regards the sclerosis and varicose enlargement of the vein as the primary trouble, and suggests that this peculiar pathologic condition of the veins in this region may be traced to an infectious process in the umbilicus in the first weeks of life. There was a history of such a process in two of Türck's patients. Several of the cases on record were in children. There is also the possibility of injury from toxic products formed in the intestines which are liable to act most intensely on the nearest veins, namely, the portal system; Stahl used to say "the portal vein is the portal of ills."

149. **Diphtheria Bacilli-Carriers.**—Markl and Pollak report from Trieste that they found extremely virulent diphtheria bacilli in the nasopharyngeal secretions of four out of ninety-one healthy persons examined free from known contact with diphtheria. In six other cases bacilli were found which apparently could be distinguished from true diphtheria bacilli only by their lack of virulence. The tellurium plate proved most reliable for cultivating the bacilli, but they state that none of the usual morphologic differential criteria are *absolutely* dependable.

151. **Asthenia from Functional Insufficiency of the Adrenals.**—Hoke reports a case which, he says, belongs in the same category with the cases of a peculiar state of asthenia of short duration reported by Riesman in The Journal, 1912, lviii, 1846. His patient was a woman of 32 who had never been quite healthy since a severe diphtheria at 14. She tired easily and had palpitations, dizziness and sudden sweating on slight exertion. At 28 she passed through a normal pregnancy. Hoke was called to her as she was said to have fainted. He found the skin pallid and clammy, the pulse scarcely perceptible; the heart rate 52 but rhythmic; the heart sounds pure; the temperature in the mouth 35.8 C. The patient felt that she was dying. He injected 0.5 c.c. of 1 to 1.000 epinephrin solution, assuming that the trouble was an acute vascular paralysis. The effect was surprising; in fifteen minutes the symptoms had subsided, and the patient felt well and strong; pulse 62, and much stronger. She was then given a course of carbonated baths and now seems to be permanently improved; the myasthenia is much better, the pulse up to 72, and the blood-pressure up to 110.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXIV, No. 1, pp. 1-450. W. A. Freund Festschrift. Last indexed September 13, p. 909

152 Artificial Rupture of the Fetal Membranes before and after Dilatation of the Os Uteri. (Ueber Blasensprung und Blasenstich und über die Strikturen der Cervix.) H. Bayer.
153 Abortions in Connection with the Declining Birth-Rate. (Der Geburtenrückgang und seine Beziehung zum künstlichen Abort und zur Sterilisierung.) H. Fehling.
154 Etiology of Uterine Myomas. H. Freund.
155 Forceps in the Home. (Ueber Zangenanwendung in der Privatpraxis.) H. Fleurent.
156 Ovulation, Conception and Duration of Pregnancy. L. Fraenkel.
157 *Serotherapy in Pregnancy Intoxication. R. Freund.
158 Diverticulum in Urethra. (Harnröhrendivertikel.) F. Fromme.
159 *Precancerous Affections. D. v. Hansemann.
160 Constitution and Disease. C. Hart.
161 Movable Colon and Ileocecal Tuberculosis. E. Holländer.
162 Complete Knot in Umbilical Cord. (Tod des Kindes durch einen wahren Nabelschnurknoten.) K. Holzapfel.
163 Tubal Sterilization. K. Holzapfel.
164 Freund's Operation for Total Prolapse of Uterus and Vagina. J. Klein.
165 Reflex Action in Head and Eyes on Turning the Head of the Newly Born. (Entwicklung des Drehreflexes am Neugeborenen.) H. Kraft.
166 Physical Measures in Gynecology. A. Laqueur.
167 Disease of the Cecum and Large Intestine. (Die chronische Blinddarm- und Dickdarmentzündung.) G. Lindemann.
168 *Postoperative Disturbances. (Zur Beurteilung postoperativer Beschwerden nach Laparotomien.) J. Linkenkeld.
169 Treatment of Injury of the Ureter, and Neck of the Bladder. (Zur Behandlung hoher Harnleiterverletzungen, Defekten und Verletzungen des Blasenhalses und des Sphincter urethrae.) A. Mackenrodt.
170 Inflammation as Cause of Development of Aberrant Decidua or Paradecidua. R. Meyer.
171 Differentiation of Abdominal Tumors. R. Müllerheim.
172 Symptomatology of Vesicovaginal Fistulas. (*Blasen-Scheidenfisteln.*) M. Muret.
173 Causes of Periodical and Alternating Swelling of the Ovaries. E. Ries (Chicago).
174 Cancer of the Pregnant Uterus. (Verhalten der regionären Lymphdrüsen und des Ureters beim Carcinoma colli uteri in graviditate.) W. Rühle.
175 Influence of the Ovaries on the Growth of the Mammary Gland. (Zur Lehre der inneren Sekretion.) G. Schickele.
176 *Influence of Castration on the Growth of the Bones after Sexual Maturity. (Einfluss der Kastration auf das Knochenwachstum des geschlechtsreifen Organismus, und Gedanken über die Beziehungen der Kastration zur Osteomalacie.) H. Sellheim.
177 Suture of Trunk Veins during a Laparotomy. (Naht der grossen Beckengefässe bei der abdominalen Radikaloperation.) W. Sigwart.
178 Fibromas in Round Ligaments. (Zur Kasuistik der primären desmoiden Tumoren des Ligamentum rotundum.) K. Steidl.

179 Infantilism. R. v. d. Velden.
180 Toxicity of the Urine with Anaphylaxis. (Harngiftigkeit bei Anaphylaxie.) A. Zinsser.
181 Internal Secretion of the Salivary Glands and their Relations with the Genital Organs. L. Mohr.
182 Kidney Functioning during Pregnancy. K. Eckelt.

157. Serotherapy in Pregnancy Intoxication.—Freund gives the details of the cases of pregnancy dermatitis on record, and describes three from his own experience in all of which serum therapy was applied; also several cases of hyperemesis, and three cases each from the literature and from his own experience in which serotherapy was applied in eclampsia. He then records similarly the experience to date with normal horse serum applied in pregnancy dermatitis, uncontrollable vomiting and eclampsia, and further similar records of cases in which Ringer's solution was applied. The latter group includes nine dermatitis cases from his own experience, and two of hyperemesis. The total material is classified for comparison of the effects of these various forms of serotherapy. The most favorable results were obtained in pregnancy dermatitis; thirteen patients were cured with serum from pregnant women, four with horse serum, and fourteen with Ringer's solution. In only one case of pregnancy dermatitis was no benefit derived. No effect was apparent also in two of the ten cases of uncontrollable vomiting. Two patients died of the twelve with eclampsia given serotherapy; the others recovered. The practical conclusions from the above figures are emphatically in favor of treating all patients with pregnancy dermatitis or uncontrollable vomiting by subcutaneous infusion of 200 c.c. of Ringer's or Locke's solution, repeating the infusion two or three times at need. If this fails, a subcutaneous or intravenous infusion of 20 c.c. of horse or human serum should be given. Whether serotherapy should be applied in eclampsia is still an open question, as the course of eclampsia is so exceptionally acute; but the results observed to date justify its tentative use.

Freund traces the history of serotherapy, remarking in conclusion that the favorable practical results obtained in the toxic conditions for which a pregnancy is responsible, are the outcome of long years of research based on the placenta theory. This led to the discovery of the binding of the toxic substances in the placenta by fresh serum. Then followed the era of serotherapy of toxicoses, and this in turn has yielded to the treatment of toxicoses by solutions of salts resembling serum in their composition. This is much simpler and more convenient than serum itself. It is possible, he adds, that administration of calcium and potassium salts might be useful during a pregnancy for prophylaxis of toxic conditions. The formula he prefers for the Ringer's solution is 7.5 parts sodium chlorid; 0.1 part potassium chlorid; 0.2 part calcium chlorid and distilled water to 1,000 parts. Seventeen of the total forty-nine cases analyzed are from his own experience at the Berlin Charité hospital.

159. Factors Predisposing to Cancer.—Hansemann emphasizes that it is possible to steer clear of many forms of injury, which are liable to become subject later to cancerous degeneration. Other injuries cause lesions which can be excised in time. In still others the primary injury is not known, and this gap in our knowledge can be filled only by long years of observation of patients developing cancer later, and hence science can look for the solution of these problems only to the family physician or to physicians making a study of their own bodies, and keeping a record of all injuries, etc.

Of the precancer affections, he regards pigmented xeroderma as the most typical as this is familial, indicating a congenital predisposition, and malignant degeneration may occur even in children. Sunlight here is the irritant involved, but once the affection is installed, artificial light may suffice for the irritant. He thinks that a number of other skin affections belong in this predisposing-to-cancer category. Leg ulcer is an example of an acquired predisposition; when such an ulcer has persisted for years, it is often possible to discover cancerous degeneration at some point; this occurs far more frequently than is generally recognized. The greater the predisposition, the less irritation is required to elicit cancer growth. Only very rarely is the predisposition so great that the irritation causes the cancer to develop in a short time; decades are required for this, as a rule, and this explains why cancer is most frequent between 40 and 60. Those who escape to 60, show that they have no predisposition. The successful excision of cancer testifies further that the predisposition is local. Aberrant embryonal tissue seems to be especially dangerous; Hansemann has never known of an instance of malignant degeneration of an ordinary wart on the skin or in the larynx. The warts, etc., that turn into cancers are always congenital.

He insists that more attention should be paid from the standpoint of prophylaxis of cancer to hemorrhoids and fistulas, to constipation as a source of irritation of the large intestine liable to lead to cancer, irritation of the esophagus from peppery food and strong liquors, and irritation of the stomach from burning hot food. He states that the stomach mucosa does not feel heat and consequently when one takes an overhot mouthful and swallows it quickly, no further discomfort is felt from it, and yet the stomach mucosa is injured more readily by hot substances than the mucosa lining the mouth and esophagus. This is particularly liable to be the case if the extra hot mouthful happens to be meat or potato; this holds the heat at one point and it is not spread as in case of a hot fluid. The hot chunk lying at one point is almost certain to injure the mucosa seriously and there can be no doubt that this has contributed to ulcer in the stomach in certain cases.

168. Postoperative Disturbances.—Linkenkeld warns that it is necessary to ascertain whether there are not metastasic nodules in the peritoneum, too small to be palpated and yet showing the hopelessness of any operation. This is particularly to be guarded against with cancer in the kidney or rectum, and he advises an exploratory laparotomy. In two such cases he found the peritoneum studded with metastases and realized the inoperability of the growth which nothing else had indicated. He thinks that adhesions have been regarded too seriously in the past; trouble need not be anticipated from them as a rule, except when they are liable to bind some part of the stomach or intestines or drag the mesentery.

The whole secret of avoiding postoperative disturbances, he reiterates, is in correct diagnosis and operating only when absolutely necessary. The simultaneous occurrence of two or more surgical affections is often perplexing: in one such case he found epigastric hernia, empyema of the gall-bladder and ulcerative appendicitis. In another, empyema of the gall-bladder with kidney-stone colic; one woman with gonorrheal salpingitis and recurring appendicitis was treated by appendectomy alone, and the gynecologic affection healed spontaneously. He warns further that certain pains cannot be referred to certain pathologic conditions found, as, for example, intense pain in the sacral plexus cannot be explained by retroversion of the uterus.

Pain from inflammation of an abdominal organ does not let up during sleep; it is increased by movements; the organ feels warmer than usual, the arteries pulsating more actively; the sensitiveness of the abdominal wall to pressure is diffuse, and the sensitiveness increases as the pressure is relaxed. With hyperesthesia, there is not this diffuse character of the sensitiveness; the tender points characteristic of neuralgia can be detected; the pains are intermittent and do not disturb the sleep and they are not exaggerated by movements but can be modified by emotions, especially pleasurable ones, and by diverting the attention. On palpation of the *internal* genitals the patient jumps but if the internal genitals were actually inflamed proportional to this extreme tenderness, the patient would not be well enough to come to the office.

He mentions also that lumbago and spondylitis are often erroneously diagnosed as perimetritis. Intermittent, laborlike pains indicate that a hollow organ is trying to expel something through a narrow portion of the organ. A tuberculous ileocecal tumor often proves misleading in this way; if large enough to be palpated it is assumed to be a genital tumor. He diagnosed a tuberculous ileocecal tumor in a woman with intense *intermittent pains in the cecal region* and a palpable tumor during the attacks, but the trouble proved to be spasms of tabetic origin. *Intermittent pains* are also liable in case of sclerosis of the mesenteric vessels; the picture is similar to that of intermittent claudication. These cases are often wildly misleading.

He adds that the sudden cessation of stormy labor-pains is a sign that the uterus has ruptured, and the subsidence of the intense pains with a ruptured tubal pregnancy is a sign that the hemorrhage has been arrested. Tenderness at the three typical painful points of the ileo-inguinal nerve is frequently a sign of coitus interruptus; the uterus and adnexa are generally tender on palpation and there is usually some discharge from the uterus. In conclusion, Linkenkeld remarks that it does not redound to the credit of the profession when the lay public recognize fashions in medicine, saying, for example, "Nowadays everything is ascribed to appendicitis."

176. Influence of Castration on the Growth of the Bones.—Sellheim has continued his research in this line and here gives an illustrated description of experiments with the male of the deer in which the effect of castration on the growth of the branching horns could be instructively studied. The facts observed suggest that osteomalacia may be regarded as a pathologic exaggeration of a natural physiologic process in pregnancy. It aims to supply the needs of the fetus while sparing the mother's bone system. Rachitis must also be regarded from the same point of view. Castration arrests the exaggerated ovarian functioning, and in rachitis the aim should be to over-dominate the injurious internal secretion by supplying artificially the antagonist secretion, which, in this case, he thinks, is the hypophysis secretion. Two articles have been published recently advocating the use of hypophysis extract in treatment of rachitis (Klotz and Weiss).

Zeitschrift für Urologie, Berlin

October, VII, No. 10, pp. 785-864

183 Urology as Science and as Course in Medicine. L. Casper.
184 *Production of Urinary Calculi and Sediment. (Bildung der Harnsteine.) C. Posner and L. Lichtwitz.
185 Total Inefficacy of Balsamics in Treatment of Gonorrhea. M. Roth.

184. The Colloids in the Urine as Factor in Production of Calculi.—Posner remarks that courses of mineral waters dilute the urine and thus counteract the concrement-producing action of the colloids in the urine. They are also liable to modify the crystal-producing property of the urine and, by promoting diuresis, to wash out sediment.

Lichtwitz incriminates likewise the colloids and states that therapeutics must aim to provide protecting elements in the urine, such as gelatin, or give salts to enhance the solubility of the colloids.

Zentralblatt für Chirurgie, Leipsic

October 4, XL, No. 40, pp. 1545-1584

186 Technic for Occlusion of the Pylorus. (Zur Technik des Pylorusverschlusses.) G. Mertens. (Zur Pylorusexklusion.) E. Bircher.

Zentralblatt für Gynäkologie, Leipsic

October 4, XXXVII, No. 40, pp. 1469-1500

187 *Raising the Pelvis as Aid in Correction of Retroflexion of the Uterus. (Beckenhochlagerung bei Reposition des retroflektierten Uterus.) Liebl.

187. Raising the Pelvis in Reducing Retroflexed Uterus.—Liebl states that in two recent cases the women were pregnant and by raising the pelvis the retroflexed uterus slid down into normal position in one case with scarcely any need for assistance on his part. General anesthesia is not required.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 30, XXXIV, No. 117, pp. 1223-1230

188 Diphtheria and the General Practitioner. R. Persico.

October 2, No. 118, pp. 1231-1238

189 *Roentgenotherapy in Myeloid Leukemia. M. Gioseffi.

189. Roentgenotherapy in Myeloid Leukemia.—The case reported showed the typical course under roentgenotherapy; marked improvement at first in both the blood picture and the general health, but then return of the severe symptoms. They subsided anew under repetition of the Roentgen-ray exposures, but Gioseffi is anticipating any day to have the symptoms return as roentgenotherapy does not seem to arrest the actual cause of the disease although it has kept this patient thus in good condition for a few months. The spleen alone was exposed to the rays three and four times in the course of one and three weeks at the two courses of treatment with two months' interval. The patient is an x-para of 58.

Policlinico, Rome

September 28, XX, No. 39, pp. 1397-1432

190 Foci of Localization of Malaria. (Sulla localizzazione della malaria nelle abitazioni.) B. Gosio.

October, Surgical Section No. 10, pp. 433-480

191 Incarcerated Femoral Hernia of the Fallopian Tube. (Ernia crurale strozzata della tromba uterina con sindrome d'ileo paralitico.) I. Scalone.
192 Wounds of the Heart. (Sulle ferite del cuore.) N. Leotta. Commenced in No. 7.
193 Suprapubic Prostatectomy. G. Dialti.
194 The Lower End of the Dura Mater. (Topografia del sinus terminalis della dura madre spinale con considerazioni chirurgiche.) R. Casali.
195 Fascia Grafts to Close Blood-Vessel. (Plastiche vasali con lembi liberi di aponevrosi.) A. Chiasserini.

Riforma Medica, Naples

September 27, XXIX, No. 39, pp. 1065-1092

196 Metabolism in Animals Castrated at Birth. (Ricambio respiratorio e ricambio materiale in animali castrati dalla nascita.) De Vita Damiano.
197 The Luetin Skin Test in Syphilis. (Esperienze con la luetina di Noguchi.) G. Gavini. Commenced in No. 36.

Brazil-Medico, Rio de Janeiro

September 15, XXVII, No. 35, pp. 366-377

198 Transmission of Surra by Insects. (Multiplicação na vinchuca—Triatoma infestans Klug—do trypanosomo do mal de cadeiras.) A. Neiva.
199 Roentgenoscopy in Diagnosis of Incipient Pulmonary Tuberculosis in Adults. T. Dodsworth.

Hygiea, Stockholm

August, LXXV, No. 8, pp. 721-848

200 *Local Diagnosis of Spinal Cord Tumors. (Ryggmärgstumörer.) G. Söderbergh.
201 Present Status of Cancer Research. (Den komparativa och experimentella kräftforskningens problem.) L. Wolff.

200. Local Diagnosis of Spinal Cord Tumors.—Söderbergh analyzes a few cases from his own experience with diagrams showing the significance of the findings. In one case there were three tumors in the spinal cord; the findings in this and the other cases indicate, he thinks, that the seventh dorsal nerve innervates the upper part of the external abdominal oblique; the eighth and ninth dorsal nerves the transverse or transverse plus external and internal oblique muscles, while the tenth innervates mainly the internal oblique. In the above case the abdominal wall was almost as hard as with a newly perforated gastric ulcer. The cramps subsided only for a few minutes at a time, but the pain had paroxysmal exacerbations. No abdominal reflexes could be elicited. During coughing the abdominal wall was drawn up in the epigastrium a little to the right, while below the umbilicus the position was unmodified. Electric tests showed reduced irritability of the upper part of the left external oblique and the patient complained of pain in this region. Söderbergh accepted these slight findings as indicating a tumor at the left seventh dorsal root, compressing the spinal cord and responsible for the spastic paresis in the legs with recurring paroxysms of pain, the bladder disturbances and sensory symptoms corresponding to the tenth dorsal root. The operation revealed a psammoma 22x10 mm. at the seventh dorsal nerve. Improvement followed its removal but the paroxysms of pain returned later and during them the umbilicus was drawn up to the left. As the cramp relaxed, the umbilicus did not return to normal condition but moved up toward the right, and if the patient coughed this displacement became more noticeable. A second operation revealed a second tumor, compressing the twelfth dorsal segment and a third operation became necessary for still another tumor. The patient was a woman of 48. In another case the tumor was in the upper cervical region and had grown into the dura. In the two other successful cases the tumor was also in the upper cervical region in one and in the cauda in the other. All were thus rare types. A diagram and table give other instructive data.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. LXI, NO. 20 CHICAGO, ILLINOIS NOVEMBER 15, 1913

THE PROTEIN POISON AND ITS RELATION TO DISEASE *

VICTOR C. VAUGHAN, M.D.
ANN ARBOR, MICH.

In 1903, Vaughan and Wheeler found that the cellular substance of the colon bacillus contains a highly active poison. This was obtained by extracting the dried, dead cells with a 2 per cent. solution of sodium hydroxid in absolute alcohol at 78 C. (172.4 F.). This poison was partially purified by repeated precipitation from alcoholic solution with either mercuric or cupric chlorid and removal of the base with hydrogen sulphid. This poison kills guinea-pigs when injected intravenously in doses of 0.5 mg. When given intra-abdominally this dose must be multiplied by 16 and when given subcutaneously by 32 in order to cause death.

Subsequently the same, or a closely related, poison was obtained from other pathogenic and from nonpathogenic bacteria, and then from vegetable and animal proteins. This work has been repeated and confirmed by others in this country and abroad. It is now known as "the protein poison" and is believed to be a constituent of every true protein whatever be its source. The purest proteins known, such as edestin from hemp-seed and zein from corn-meal yield this poison. It is not found in certain albuminoid substances, such as gelatin. It is found in Witte's and De Chapateau's peptones, but not in that of Defresne. Whether or not the latter is prepared from gelatin is not known.

The symptoms induced by this poison are quite characteristic and can be divided into three well-defined stages. The first is that of peripheral irritation and is marked in the guinea-pig by attempts to scratch every part of the body. In man it is shown by an urticarial rash which spreads from the point of injection and may extend to every part of the skin and invade the visible mucous surfaces. The second stage is one of partial paralysis with rapid and shallow breathing. The third stage is known as the convulsive, and begins in isolated clonic movements which become more frequent and general, finally involving all the muscles of the body and terminating, as a rule, in death. With fatal or nearly fatal doses there is a fall in temperature, which with fatal doses is progressive, and the temperature may fall in guinea-pigs to 85 F. before death. When recovery occurs, the first symptom of this is a return of the temperature toward the normal. In both man and experimental animals, recovery from a single nonfatal dose is speedy, and a complete return to the normal condition may result within a few hours.

Small doses of this poison administered subcutaneously cause fever, and a like effect can be induced with unbroken proteins. By changing the size of the dose and the intervals of administration it is possible to induce any and every known type of fever in experimental animals. One can induce an acute fever, terminating fatally, in a few hours. In this type the temperature can be carried to 107 F., which seems to be near the thermal death-point in these animals. Intermittent and remittent fevers are easily established and varied at the will of the experimenter. A prolonged fever extending through weeks and with a chart not distinguishable from one of typhoid may be established and carried to a fatal issue in rabbits. In fever of this kind there is the usual morning recession and the afternoon exacerbation so characteristic of typhoid. Furthermore, there is increased nitrogen elimination, and progressive emaciation is observed.

When proteins are taken into the alimentary canal and are acted on by the digestive juices the product becomes poisonous at about the peptone stage, and if the peptone formed in alimentary digestion should be absorbed into the circulation it would be highly injurious; but the digestive process proceeds and the peptone is broken up into harmless amino-acids, which are absorbed and synthesized into the proteins of our bodies.

When proteins find their way into the blood without being brought under the action of the digestive juices of the alimentary canal they must be digested in the blood and tissues, and in this process the protein poison is set free and, since general distribution cannot be hindered, it exerts its deleterious effects on the body.

We now know that the symptoms of many diseases are due to the parenteral digestion of proteins. Whenever a foreign protein, be it particulate or in solution, alive or dead, gets into the blood and tissue it must be disposed of by parenteral digestion. There seems to be no great differences in the amount of poison contained in the molecules of ordinary proteins, whether they be vegetable or animal, and, as has been said, the action of the poison is the same whatever the protein from which it has come. Dead protein contains just as much poison as living protein, but if the latter can grow and multiply in the body it increases the amount of its poison. Quite naturally most of the foreign proteins that find their way into the blood are living, such as bacteria and protozoa. Researches into the poisonous action of ordinary proteins, however, under the influence of the condition of sensitization, have demonstrated that living proteins are not absolutely essential to the development of certain diseases. If in any way proteins find access to the blood and tissues and the body becomes sensitized, then disease and death may result without bacteria or protozoa playing any part in the process. It has been shown quite conclusively that hay-fever and kindred

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

disorders are due to sensitization to the pollen of diverse plants. Horse-asthma comes from the inhalation of hairs, and possibly of other proteins, from the horse carried through the air in other forms. The inhalation of peptone or other finely divided proteins may cause acute and subacute inflammation of the upper air-passages. Sensitization may result from the absorption of undigested or partly digested proteins from the alimentary tract. Whether or not the summer diarrheas of infancy ever originate in this way is a question to which a positive answer cannot yet be given. There are some good reasons for suspecting that the lowered vitality of the infant by excessive heat may lead to absorption of undigested proteins, and in this way cholera infantum and kindred diseases may be induced. We have not enough information on this matter at present, however, to enable us to speak positively, and I shall confine myself to a brief statement of the part played by the protein poison in the bacterial diseases. Recent studies in protein sensitization have quite materially modified our views concerning the nature and progress of the infectious diseases.

Bacteria have generally been regarded as unicellular plant organisms. This view is without just warrant. There is no proof that the bacterial cell contains cellulose. Indeed, all the evidence that we have concerning the chemistry of the bacterial cell is quite to the contrary. The bacteria which have been most thoroughly studied consist largely, if not wholly, of nucleoproteins or glyconucleoproteins, and are therefore more closely related to animal than to vegetable forms of life.

It has been assumed, furthermore, that the chemical structure of the bacterial cell is relatively simple. This has been shown not to be true. The molecules which make up the greater part of the proteins of the bacterial cell are quite as complicated as those that are found in the cells of our own bodies. These molecules contain at least two carbohydrates, one of which is attached to the nuclein group, while the position of the other has not been determined; but the weight of evidence is that it is a constituent of the protein part. Bacterial cell-substance yields the nuclein bases, and the greater part of it consists of protein, as is shown by its abundant yield of amino-acids, both mono and diamino. It will be seen from this that, although bacteria may be morphologically simple and without marked differentiation in structure, they are chemically quite complex and highly organized. This means that functionally they are quite on a par with the cells of the animal body with which the pathogenic bacteria so often compete.

The newer theory of how bacteria cause disease may be stated as follows: The cell is the morphologic unit of life, though not the physiologic unit. The latter is the protein molecule which lies in the cell and of which the cell is essentially composed. Bacteria are particulate proteins, and viruses capable of causing disease may be without form recognizable by us. The only essential and constant distinction between living and dead matter is that the former is never in a state of equilibrium; it is constantly absorbing and excreting; it feeds and eliminates; it is constantly trading in energy; it is labile, not stable. Every living cell must form ferments by which it splits up the pabulum on which it feeds. Whether a given bacterium is pathogenic to a given animal or not depends on two things. First, in order to be pathogenic it must be able to split up and feed on the proteins of the animal body; otherwise it cannot grow and multiply in that animal's body and consequently cannot harm it. Secondly, the ferments of the cells of the animal's body must not be immediately, at least, destructive to the invading bacterium. When the ferments of the body-cells have this destructive action on the bacterium, the latter cannot be harmful to the former. These two things determine the pathogenicity or non-pathogenicity of a bacterium, and one or the other or both lie at the base of all bacterial susceptibility and immunity. The pathogenicity of a bacterium is not determined by its capability of forming a poison, because there is no protein without poisonous content. The ferments with which cells, be they bacterial or body cells, split up their pabulum or prepare their food are known as extracellular ferments. They diffuse from the cell into the surrounding medium, and exert a cleavage action on those food substances which they are capable of thus altering. Some are highly diffusible and may pass through a relatively large amount of pabulum, while others apparently act only on those substances that come into contact with the cell.

Of all the bacteria with which we have worked the *Bacillus prodigiosus* yields the largest amount of the protein poison, but this organism is not pathogenic to man or laboratory animals because it cannot grow and multiply in the animal body. On the other hand, the anthrax bacillus yields a relatively small amount of the protein poison, and yet it is one of the most infectious organisms because it can grow and multiply in the animal body.

The extracellular ferments are not the only ferments with which living cells are supplied. Many, probably all, living cells have intracellular ferments, which are non-diffusible and remain within the cell. The function of these is to take the food as prepared by the extracellular ferments and build it into the cell tissue. It will be seen that the extracellular ferment is destructive or analytic in its processes, while the intracellular ferment is constructive or synthetic.

The important lesson which we have learned from our studies of protein sensitization is that the nature and action of cell ferments may be, to some extent at least, modified at will. Cells can be trained or educated to pour out a special ferment to digest a specific body. This is the explanation of vaccination. The virus of small-pox is pathogenic to the unvaccinated, but is non-pathogenic to the man who has had the disease or has been vaccinated. The typhoid bacillus is no longer infectious to the man who has been properly vaccinated against this disease. Vaccination is secured by introducing into the body that protein which causes the disease, but in a condition so modified that it will no longer cause the disease, but will lead the body-cells to pour out a ferment which will destroy that specific protein when it is reintroduced. In vaccination for small-pox the protein has been modified by being passed through the cow. A vaccine for anthrax is obtained by growing the bacillus at a high temperature or in the presence of a weak germicide. The dead typhoid bacillus serves as a vaccine. When an individual has been protected by one of these vaccines and is exposed to the disease, the organism is destroyed so soon after admission to the body that it does no harm, and in this way immunity is secured by vaccination. It is easily understood that this form of immunity is not absolute, but is relative, and may be overcome by severe or prolonged exposure.

Vaccines are now used not only as preventive but also as curative agents. Much harm is being done by their indiscriminate and ignorant employment, but their proper use is rational and scientific. They are of special value in local infections, and they operate by stimulating a wide area of body-cells to furnish a ferment which destroys the bacterium that is the cause of the local condition.

In the light of what has been learned from studies of the protein poison and protein sensitization let us see how the typhoid bacillus acts in inducing the disease. The bacillus finding its way into the body grows and multiplies. Its extracellular ferment acts on the proteins of man's body and prepares the food which is built into typhoid tissue by the intracellular ferments. The ferments of the body-cells are not capable of destroying the invading organism and during the period of incubation it multiplies greatly. During this time the man is not ill. It is not, therefore, the growth and multiplication of the bacillus in the man's body that directly causes the symptoms of typhoid fever, because at the time of its most active growth there is no fever or other symptom. During the period of incubation the bacillus furnishes the ferment, and the proteins of the man's body constitute the substrate. These proteins without much change are taken into the bacterial cells and built into typhoid bacterial tissue. The process is largely one of assimilation and construction, and no poison is liberated; consequently there is no fever or other symptom. After about ten days the period of incubation ceases and the disease is ushered in. The body-cells, under the influence of the foreign protein and for the purpose of its destruction, begin to pour out a new specific ferment. During the disease the body-cells furnish the ferment, and bacterial cells constitute the substrate, the process is destructive, the protein poison is liberated and fever with its concomitants result. The person may die as a result of the too rapid liberation of the poison, from a lesion due to the effects of the products of the parenteral digestion or from chronic poisoning.

221 South State Street.

ABSTRACT OF DISCUSSION

Dr. John Zahorsky, St. Louis: It is refreshing to pediatrists to find that many American pediatrists and physicians have rather held to the original view that, after all, it is the protein that causes the death of the babies in summer diarrheas. Holt of New York has held the same view. There are certain forms of diarrhea in children that are not bacterial. I think that this is now generally recognized. The method by which this poison is produced, how it enters the blood and what circumstances produce it, is yet to be worked out. These diarrheas occur early in the summer. The condition is ordinarily called fermentative diarrhea. It is attributed to carbohydrate fermentation. While we have acute attacks of indigestion in the winter, due to acute indigestion of sugar, in the summer we have diarrheas which we cannot cure by giving the various treatments. The diarrhea is persistent, sometimes for weeks; that type of disease, the toxin of which is unknown, is probably not a direct infection, but undoubtedly depends on some poison, as suggested by Dr. Vaughan.

Dr. Mary Strong, Omaha: I want to speak from the clinical point of view. In Omaha the climate is abominable in summer. Some ten years ago a healthy, live baby was born under my service. I saw that baby when it was about three days old, and for no reason that we could discover it was almost comatose, with a temperature of over 104 F. I did not have laboratory methods convenient for use. I used common sense. I had the baby stripped and sponged with cold water; cold water was injected into its rectum, and we gave it all the cold water that it would swallow; the baby promptly recovered without any change of food. It was having mother's milk, which was good. I know now why that baby recovered. Since then, every summer I have seen babies in Omaha dressed according to the directions of the Eastern doctors, with flannel next to the skin. My first treatment is to take off every scrap of flannel. I think that the nearer naked the baby is in hot weather the better. I saw a baby in my office last summer with a high fever and acute diarrhea, dressed according to Holt. It was not dressed that way when it left my office. It had on one necessary garment and a slip—and I told the mother to take that off when she reached home. The baby recovered. I believe that I know now why it recovered. I found out several years ago that clothes kill a great many babies in the summer time, particularly flannel. It makes them so warm that changes take place in the digestive juices.

Dr. C. H. Johnson, Grand Rapids, Mich.: Finkelstein has reduced the mortality in his institution from 60 or 80 to 7 per cent. by cutting out sugar and salt in a large degree. He agrees with everything else that Dr. Vaughan says. Finkelstein says that the death-rate in diarrhea has not been reduced by the sterilization of milk. He believes that the disease is due to chemical changes.

Dr. C. G. Grulee, Chicago: It seems to me that there is another side to this proposition—the prime factor, the one thing necessary for such a theory to be realized—that this protein must be absorbed through a deranged gut. What causes the derangement? In answer to Dr. Johnson, I may say that Dr. Finkelstein's ideas have received a serious jolt in the last year. Bendix and Samelson have shown that the injection of sugar solutions made from freshly distilled water does not produce a rise in temperature when injected subcutaneously, while, if the distilled water used is old, a rise in temperature is produced. This, although not yet printed, has also been confirmed in Finkelstein's own clinic by a young Chicago physician, Dr. Grace Meigs, in regard to salts. This does not mean that we cannot produce a rise in temperature from the ingestion of salts or sugar by mouth. In fact, it has been shown definitely that those experiments are correct; that a certain amount of salt or sugar does cause a rise in temperature. The only way in which the seeming conflict of these two propositions can be explained is that the sodium salts or sugar, when given by mouth or rectum, causes a change which allows absorption of some product from the intestine and in that way produces a rise in temperature and symptoms. They have not determined the matter definitely, but have reason to believe that the product in the stale distilled water is not bacteria; but that does not make any difference, nor does it combat this theory of Dr. Vaughan's. It seems to me that, while there are many points that will have to be worked out, we may be on the right track in regard to the causation of summer diarrhea.

There is protein in the intestine other than casein, other than the protein ingested from food, which may be active in the mucus. This has not been accorded the place by pediatrists, which it perhaps deserves, as the source of putrefaction. This may cause a great deal of trouble. As we go further with Dr. Vaughan's idea, we may find that it is absorption of the mucus unchanged.

Dr. Louis Burckhardt, Indianapolis: Dr. Vaughan stated that some food is harmless at one temperature and harmful at another. In our city we have a first-class milk-supply. Our milk commission has controlled it. We have taken sample tests in the laboratories, and the last three tests came back with a count of three hundred. In spite of that, the board of health proposes to demand pasteurization of the milk. I am much interested to hear Dr. Vaughan's idea about the advisability of compulsory pasteurization of milk which has been produced under all the precautions.

Dr. H. W. Cheney, Chicago: Dr. Vaughan did not suggest it, but I wish to ask if this protein poison he speaks of is not the same as that present in horse-serum given therapeutically, which causes death in animals in which it is sometimes used. From a clinical point of view we can agree that some of the cases of summer diarrhea are caused by protein poison, but we know that a large proportion must be caused in other ways, because we can cure these patients feeding skimmed milk, a protein-rich food.

Dr. George S. Cattermole, Boulder, Colo.: In Colorado we have few cases of summer diarrhea. I believe the reason for this is our low mean summer temperature. Our nights are cool. Probably for this reason we are free from the intestinal disorders in infants that are so common in hot climates. So-called "cholera infantum" is almost never seen in Colorado.

Dr. T. C. McCleave, Berkeley, Cal.: I understood Dr. Vaughan to say that all protein poisoning is the same, the symptomatology depending on the localization in the body. In the exanthematous diseases, in which specific manifestations appear so largely in one organ, the skin, how does he explain the occurrence of the different characteristic eruptions under his theory?

Dr. Victor C. Vaughan, Ann Arbor, Mich.: It is evident that the presence of other constituents besides proteins in the food influences to a great extent the absorption of proteins from the intestines. This absorption is largely a question of osmosis. It is altogether probable that one dilution of sugar favors the passage of the protein into the blood, while another dilution would have the opposite effect.

I am glad that this question concerning scarlet fever was brought out. As I have stated, experimental fever can be induced in animals by the subcutaneous, intravenous and intra-abdominal injection of any kind of protein. These proteins have their predilection places in the body, where they accumulate. This is true of both living and dead proteins. The pneumococcus protein accumulates in the lungs; the typhoid protein in the mesenteric lymph-nodes and in the spleen, and the proteins which are concerned in the exanthematous diseases accumulate in the skin and submucous tissues. We have shown positively by experiments in the laboratory that white of egg injected into the circulation of a rabbit soon disappears from the blood. Later it may be found in various tissues. White of egg injected into a rabbit intravenously accumulates largely in the skin and in the walls of the intestines. It is also found in the kidneys. Not only does the foreign protein disappear from the blood and become diffused through the tissues, but it also carries with it an appreciable amount of the normal proteins of the blood. The symptoms of one disease differ from those of another largely on account of the organ in which the foreign protein is deposited and in which it is disrupted. The most skilful physician cannot distinguish by the symptoms alone between a meningitis caused by the meningococcus and one caused by the pneumococcus or a third caused by the typhoid bacillus. In all acute infectious diseases the poison formed is one and the same thing. It is the protein poison that kills in all these diseases.

The question has been asked concerning the pasteurization of milk. I should prefer to feed a baby on pure rather than on bad milk, on milk with a low bacterial count than on that with high bacterial count, even if the bacteria are not pathogenic. Bacteria, whether they are pathogenic or non-pathogenic, split up the proteins of milk and probably render them absorbable without complete digestion. The exact relation of cholera infantum and the other forms of summer diarrheas to anaphylaxis has not been made out with certainty. I am, however, of the opinion that the absorption of partly digested proteins has much to do with the summer diarrheas of infancy.

ACUTE ACID INTOXICATION IN CHILDREN *

THOMAS C. McCLEAVE, M.D.

BERKELEY, CAL.

This paper contains nothing new; but because the subject receives scant discussion in current text-books, and periodical literature contains articles dealing rather with particular aspects of the matter, it may be of some value to make a general survey of our knowledge of that important disorder occurring in children which, for want of a better term for the time being, we may still tentatively designate "acute acid intoxication."

Acid intoxication is an extremely common phenomenon in a variety of pathologic conditions, but in children, usually from 2 to 10 years old, we see very frequently a symptom-complex in which acidosis is a marked and constant characteristic. Attacks are commonly recurrent, and may come on suddenly or be preceded for a day or two by a prodromal period in which are observed listlessness, anorexia and coated tongue, and, quite strikingly, a bluish pallid ring around the mouth and beneath the eyes, with dusky cheeks. Headache may be complained of, and there is usually a coryza and injection of the conjunctivae, with a variable cough. Intense nervousness, even to marked meningismus, may be exhibited in the beginning, though always as the attack progresses, and frequently throughout, the child is apathetic and, in extreme cases, may even develop coma. In any but mild cases, the appearance of the child is indicative of serious illness. The face is pinched and pale, or often cyanotic, the eyes, at first bright, become sunken and dull, the lips are dry and cracked, the teeth covered with sordes, and the tongue dry and brown over the dorsum, with "strawberry" edges. The abdomen is retracted, and general wasting may be extreme. The skin is dry and harsh, often scaling after a severe attack.

The breath is foul, but the sweetish, fruity odor of acetone can always be detected, and frequently permeates the entire room in which the patient lies. There is always fever, the temperature rarely exceeding 102 or 103 F., but occasionally being very high. The pulse is soft, rapid and irregular, and the respirations sighing and irregular, often slow and deep, with marked "air hunger," both clinical and experimental evidence seeming to show that the acid poisons have a direct depressing effect on the vasomotor and respiratory centers.[1] I have seen two cases in which asthmatic manifestations were a prominent feature of the attacks.

There is no desire for food, and vomiting, except in the mildest cases, is always present, and often is extremely intractable. Large amounts of fluid may be vomited, and the rapid dehydration of the tissues occasions a most intense thirst, the child constantly pleading most piteously for water. The bowels may be constipated, or, less frequently, loose, with green or gray foul stools. The urine is scanty, and may contain albumin, casts and blood. In one case under my observation the child passed only a few ounces of dark-green, syrupy urine in twenty-four hours, which solidified on boiling.

Prostration, in severe cases, is always marked, and not infrequently a fatal termination seems imminent; but deaths from this cause are very rare. The duration of the attacks is from one or two to seven or eight days.

Diagnosis, when one is familiar with the condition, is usually not difficult. Acute digestive disorders may be excluded by the absence of a history of dietetic errors, and the persistence of the vomiting and other symptoms; acute appendicitis by the absence of pain, tenderness, and rigidity; disease of the brain or kidneys, or beginning meningitis, at first readily suspected, by the progress of the attack, and the early development of the characteristic urinary findings. That acidosis and vomiting are frequently observed at the onset of an acute infectious disease may sometimes mislead one, and seeing a child for the first time with an attack of the kind we are considering, I am in the habit of mentioning this to the parents, lest pneumonia or one of the exanthems

---

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Ehrman: Berl. klin. Wchnschr., 1913, i, 49.

unexpectedly supervene. A history of similar previous attacks of course aids in determining the nature of the present one.

The etiology and pathology of this condition are still obscure. Because of the infrequency of death from this cause, we have almost no necropsy data. Necrotic changes in the gastric and intestinal mucosa,[2] degeneration of the glandular epithlelium, small hemorrhages and ulcerations, fatty infiltration of the liver,[3] and in one case, hypertrophic pyloric stenosis,[4] are about all that have been observed.

Marfan[5] in 1901 noted the presence of acetone with recurrent vomiting, and Edsall[6] in 1903 directed attention to the occurrence of large amounts of acetone and diacetic and oxybutyric acids in the urine. Since that time discussion of the subject has largely centered about the question of the rôle of these bodies in the production of the symptoms observed, whether they are of etiologic importance or merely morbid products of the underlying pathologic process.

Langmead[7] in 1906 doubted that they were the cause of the vomiting and other symptoms, stating that he never found them in the urine until well after the onset of the attack. Two years later he ascribed the production of the acid poisons to deficient oxidation of fats by the liver consequent on impairment of its functions by toxins derived from the gastro-intestinal tract, or bacterial activity in other parts of the body.[3]

Morse[8] considered the acid bodies a secondary manifestation, but believed that they were, in part at least, responsible for many of the peculiar symptoms.

Ratchford[9] considered the condition one of auto-intoxication, functional hepatic derangement causing an accumulation of purin bodies in the blood.

Ewing[10] regarded the trouble as a disturbance of fat metabolism, due to defective activity of the liver, associated with absorption of poisonous putrefactive products from the intestine.

Chronic appendicitis was assigned an important etiologic significance by Comby.[11]

Ely[12] asserted that the disorder was a neurosis, and Howland and Richards[13] ascribed it to an unstable state of the nervous system and regarded shock or excitement as the cause of a disturbance of metabolism leading to diminished oxidation, with the circulation of the unoxidized substance in the blood. Such substances being excreted into the stomach, the vomiting may be considered as an attempt of the body to rid itself of them. My own experience with these cases indicates the undoubted importance of the nervous element in their etiology. I see very many of them, for example, at such times as Christmas week, and following children's parties, in little patients in whom the question of dietetic errors as a factor may be entirely excluded.

Janeway and Mosenthal[14] thought that carbohydrate starvation might be a causative factor, as a deficiency of carbohydrates in the diet will produce an acetonuria. Sedgwick,[15] in 1910, called attention to the occurrence of creatin in the urine of a child subject to recurrent vomiting, and later,[16] reported further cases in which creatinuria was observed. Mellanby[17] reported similar findings in the case of a boy aged 6, in whose urine creatin was always present, increasing in amount before the onset, and reaching a high level with the climax of each attack, the condition of the patient as regards acidosis apparently being immaterial, as the acid bodies usually considered at fault were sometimes present in large amount without causing any apparent change in the child's well-being. The attacks were considered as due to intestinal toxemia, with possible infection of the portal area, the acidosis being merely secondary to derangement of the glycogenic function of the liver, which, causing imperfect catabolism of the fats, an accumulation of aceto-acetic and beta-oxybutyric acids in the body results, these substances being intermediate products in the breaking down of the fats, which normally should proceed to the formation of carbon dioxid and water. The presence of creatin is explained by the fact, as shown by Cathcart,[18] that a deficiency of carbohydrates, or inability to utilize such as are present in the body, will cause this substance to appear in the urine in large amounts. The hypothesis was advanced by him that carbohydrates are essential for protein metabolism, as they are for fat metabolism.

Finally, acidosis is common in children exhibiting catarrhal conditions of the nasopharynx, adenoids and diseased tonsils, and as before noted, acute coryza is a marked premonitory symptom of the attacks. Griffiths,[2] Comby,[11] Eustace Smith,[19] Sedgwick[20] and others have emphasized this relationship, and have noted marked improvement in these cases after removal of adenoids and tonsils, or other treatment of the nose and throat. I am convinced from my own observation that there is no other single factor so important, as a large proportion of the children I see with acidosis have bad throats and the recurrent attacks of acidosis and vomiting are relieved by proper treatment of the throat conditions.

Summing up and correlating all these various views as to the etiology of the condition, I may say that in children who suffer from periodic attacks of acid intoxication or recurrent vomiting, there is probably almost always some chronic focus of infection, adenoids, diseased tonsils, an inflamed bowel or appendix, or what not, the toxins from which, being constantly absorbed, act primarily on the liver. From time to time, by reason of the cumulative effect of the toxins, or to further disturbance of the already impaired equilibrium of metabolism by dietetic indiscretions, or by excitement, fatigue or other nervous element, there results a failure of the liver properly to perform its functions. The processes of carbohydrate metabolism are first disarranged, the frequency and severity of the attacks in childhood, perhaps, being due to the fact that the reserve supply of glycogen in the liver is not so great, proportionately, in children as in adults, and that therefore any interference with the glycogen-storing or glycolytic powers of the liver, there being no longer a proper supply of sugar available, induces an immediate disturbance of fat and protein metabolism, manifested by the appearance in the urine of the toxic bodies before described. How these operate to produce the prostration, vomiting, rapid wasting, vasomotor changes, nervous disturbances and other characteristic symptoms cannot yet be explained.

---

[2] Griffiths: Am. Jour. Med. Sc., 1900, cxx, 553.

[3] Langmead: Brit. Med. Jour., 1907, ii, 819.

[4] Russell: Brit. Jour. Child. Dis., 1910, vii, 49.

[5] Marfan: Arch. de méd. d. enf., 1901, iv, 641.

[6] Edsall: Am. Jour. Med. Sc., 1903, cxxv, 629.

[7] Langmead: Brit. Med. Jour., 1905, i, 350.

[8] Morse: Arch. Pediat., 1905, xxii, 571.

[9] Ratchford: Arch. Pediat., 1904, xxi, 881.

[10] Ewing: Cornell Univ. Pub. Dept. Pathol., 1908, viii.

[11] Comby: Arch. de méd. d. enf., 1905, vii, 741.

[12] Ely, Thomas C.: Cyclic Vomiting in Children, THE JOURNAL A. M. A., March 28, 1903, p. 845.

[13] Howland and Richards: Arch. Pediat., 1907, xxiv, 401.

[14] Janeway, Theodore C., and Mosenthal, H. O.: An Unusual Paroxysmal Syndrome, Probably Allied to Recurrent Vomiting with a Study of the Nitrogen Metabolism, Arch. Int. Med., October, 1908, p. 214.

[15] Sedgwick, J. P.: Creatinin and Creatin Metabolism in Children, THE JOURNAL A. M. A., Oct. 1, 1910, p. 1178.

[16] Sedgwick, J. P.: Studies of Recurrent or Periodical Vomiting, Am. Jour. Dis. Child., April, 1912, p. 209.

[17] Mellanby: Lancet, London, 1911, ii, 8.

[18] Cathcart: Jour. Physiol., 1909, xxxix, 311.

[19] Smith, Eustace: Lancet, London, 1911, ii, 1186.

[20] Sedgwick, J. P.: Studies of Recurrent or Periodical Vomiting, Am. Jour. Dis. Child., April, 1912, p. 212.

The consideration of treatment is largely omitted from the literature, or often discussed with a note of pessimism which is entirely unjustified to-day, as the little patients who suffer from this disorder offer excellent opportunity for successful therapy. Of fundamental importance, of course, is the determination and proper treatment of such foci of infection as have been referred to. Adenoids and bad tonsils will, I believe, be most commonly found, and their removal is usually followed by complete cessation of the acidosis attacks. Similar relief has frequently resulted from appendectomy in properly selected cases. Next in importance may be placed a properly balanced dietary, low in fats, with ample amounts of carbohydrate in the form of suitable breadstuffs, crackers, dry cereal preparations, rice, etc., with simple sweets and milk and lean meats in moderation, with plenty of green vegetables and fresh fruits. Citrus fruit juices are of especial advantage because of their content of potassium citrate which is converted in the body to potassium carbonate, and so tends to maintain the alkalinity of the tissues. Grape-juices, being rich in alkaline salts, are also valuable.

Constipation may be overcome by dietetic measures or by mild saline aperients if necessary, and the child's general hygiene should be carefully conserved by a quiet outdoor life with avoidance of too great fatigue and excitement. Drugging is not to be recommended except that in children with frequent recurrence of attacks, a periodic thorough emptying of the large bowel with a saline laxative or castor oil, with the administration of a dram or two of sodium bicarbonate one day per week may be beneficial. The routine daily use of an alkali is, of course, inadvisable because of its deleterious effect on gastric digestion.

Impending attacks, if recognized, may often be aborted by prompt catharsis and the free use of sodium bicarbonate as recommended by Edsall,[6] and favorably reported on by Pierson[21] and many others. Routine examinations of the urine will often give warning of the approach of an attack even before the onset of prodromal symptoms. In the treatment of an established attack, the bicarbonate is valuable not because of any neutralizing effect on the acid bodies, but because it stimulates their excretion, and probably exerts a protective influence on the body fats. It may be given by stomach, if vomiting does not prevent, or preferably by rectum, in doses of 60 grains in 3 or 4 ounces of water every three or four hours, or more or less continuously by the drip method; and in extreme cases, by intravenous injection. To meet the need for carbohydrate, sugar must be given in that form in which it is most available for utilization, namely, dextrose. It, too, may be administered by mouth, by rectum, in 4 per cent. solution with alkali, or by hypodermoclysis if the symptoms are urgent. So-called "corn-syrup," sometimes recommended for this purpose, is commercial glucose, derived from starch by the action of hydrochloric acid under pressure of steam, and as it contains only about 30 per cent. of dextrose and over 50 per cent. of dextrin, it should not be used if true glucose can be obtained.

Extreme drying out of the tissues may be counteracted by saline infusions, prostration by appropriate stimulants, and nervous symptoms by opium, chloral or bromids, or by ice-packs or moist packs. As the vomiting subsides, gruels may first be given with orangeade or other fruit-juice drinks, gradually increasing the diet to normal.

Convalescence is frequently surprisingly rapid, and the little patient, except for the wasting, will soon show no signs of what, a few days previously, appeared to be so serious an illness.

Berkeley National Bank Building.

ABSTRACT OF DISCUSSION

Dr. John Zahorsky, St. Louis: Dr. McCleave describes the color of the cheeks as being dusky. One of the most important symptoms of acid intoxication is a deep flushing of the cheeks, but I would not call it dusky. It is really a scarlet. The diagnosis is almost certain at a glance wh the child has this peculiar color and is breathing very rapidl I recall the case of a child who had these attacks and wh after circumcision, had no attacks for nearly a year. C course, the mother attributed the improvement to the ope ation. The operative shock does seem to modify certa phenomena. The removal of the appendix, for instance, r doubt has a beneficial influence on nervous diseases.

I believe that this disease is related to migraine. I reca a family in which the mother has severe migraine attack One child has asthma, another has eczema and another h cyclic vomiting. showing a nervous disturbance throughout tl whole family. I have noticed marked enlargement of the live in two severe cases. The liver should be palpated in a cases. It has been definitely established that enlargemen of the liver does occur in these severe cases. One patien was very sick. We thought the child would die. I marked out the liver on the abdomen daily and found it extending several inches below the margin of the ribs. On a subsequent visit I detected that it had receded half an inch. I then gave a favorable prognosis, although the other symptoms were still as severe as before. I would give enlargement of the liver as an additional symptom to be watched for in severe cases of this disease.

Dr. J. R. Snyder, Birmingham, Ala.: Dr. McCleave has not mentioned a certain type of case common in the South. It occurs in children younger than those indicated by the age limits he gave; most commonly in infants between 8 and 18 months of age. It is characterized by an acute onset, vomiting, increasing dyspnea and enlargement of the liver. In the article read by Dr. Thomas D. Parke in this Section several years ago, the symptom-complex of the disease was said to consist of a low-grade temperature, as a rule, intense thirst, vomiting, increasing dyspnea, constipation, dark green or tarry stools, enlargement of the liver, such urinary findings as occur in any acidosis, and so on. We see a large number of these cases in the South. We have come to regard them as among the most serious with which we have to deal. The mortality is over 80 per cent.

Dr. C. H. Johnson, Grand Rapids, Mich.: This is a comparatively new disease. About eight years ago I had a severe case. The boy had been ill ten days with recurrent vomiting and was nearly dead when I first saw him. These children have attacks of indigestion and vomiting, and we are apt to think of a gastro-intestinal trouble. We simply do not recognize the condition. My own son had recurrent vomiting for four or five years before I made a correct diagnosis. These attacks were never ameliorated in the least until I had thoroughly removed the stumps of tonsils that had been taken out several years before that. With complete removal of the tonsils he recovered. The case I referred to before was the worst I ever saw. The attack always began with stuffiness in the nose and a slight sore throat, and what I concluded was inflammation of very small adenoids. That boy did not make any improvement until the nose and pharyngeal space were put in good condition.

Dr. Thomas B. Cooley, Detroit: I am glad that Dr. Snyder spoke of the severe cases in babies. I think that they deserve to be distinguished from the type of acidosis which we find

---

21. Pierson: Arch. Pediat., 1913, xx, 505.

in so-called recurrent vomiting. I have seen a number of these cases in babies anywhere from 7 to 18 months or 2 years of age. The acidosis seems to be an accompaniment of an acute infection—often of the influenza type. Prostration is great from the start. The children do not always have a low temperature—I have seen it 103 F. and over—and they have great air hunger, severe prostration, not much vomiting, perhaps, and not so severe or so difficult to check as in cases of recurrent vomiting in which there is a strong nervous element.

Dr. I. A. Abt, Chicago: It seems to me that the altered constitutional state due to abnormal acid in the urine must be somewhat more carefully differentiated than has been the custom in the past. Acetone, diacetic acid, butyric acid, creatin and creatinin may all be recovered from the urine of children ill with various conditions. Acetone and diacetic acid occur in normal children. Undoubtedly they also occur in various forms of infection. The class of cases that I wish to refer to are those considered by Dr. Parke in this Section some years ago and referred to this morning by Dr. Snyder. I have seen a number of these cases. I am sure that the condition is not so infrequent as would be supposed from the scant reference in the literature. There is a group of babies, from 8 to 18 months of age, particularly at the weaning period, who fall ill with gastro-intestinal symptoms consisting of vomiting, slight diarrhea and rapid pulse, with a low temperature. The first striking symptom is the rapid breathing. Some pallor is noticed and, by and by, great prostration; soon constipation occurs, followed nearly always by more or less complete loss of intestinal tone, with symptoms which may simulate an obstruction. The baby passes neither gas nor stool. I am sure that this is a definite type of case. I have seen a number of them, some even during the time when breast-feeding was the exclusive diet and some during the transitional period from breast-feeding to that of artificial feeding. The urine contains acetone, diacetic acid and sometimes leucin and tyrosin with a trace of albumin. A brief reference to some case histories may throw light on the course and etiology of the disease.

A healthy baby was born to parents in perfect health and remained well until about the ninth month, when it was weaned. In a few days he developed the symptoms of gastro-intestinal disturbance mentioned previously and died in a few days. Some time later another baby was born. He also was healthy and strong and had never been sick up to the ninth or tenth month. He developed the same symptoms and died. The urine contained acetone, diacetic acid, oxybutyric acid, creatin and creatinin.

Another baby was born. The same symptoms developed. We examined the mother's milk and urine carefully. The breast-milk showed nothing, but the urine contained a small amount of sugar. One night the baby seemed about to die. We gave large doses of carbonate of soda, took away fat and gave skimmed milk, soy-bean flour, gelatin by mouth and glucose solution per rectum. We felt that starvation was possibly an important etiologic factor in producing these acid conditions. Eight per cent. glucose solution with normal salt solution we believed might be absorbed without being oxidized in the liver, and possibly counteract the intoxication. A 2 per cent. solution of sodium carbonate was given under the skin. The baby was better the next day and recovered in a few days. The carbonate of soda solution produced an immense slough, as large as the palms of two hands.

What caused this intoxication? We have concluded from experiment that it was not the breast-milk. The mother's urine cleared up in a few days and the sugar disappeared. We thought the fact that two other children had been similarly ill pointed, first, to a family type of disorder, and secondly, to something wrong in the metabolic functions of this baby; that some defect of the organism rendered it impossible for him to take care of some particular foodstuff. Was it a fat intoxication? It did not present the symptoms or reactions usually observed in fat intoxication of infants. Nor did the condition correspond to any known clinical type of sugar intoxication. Possibly this severe and unusual form of acid intoxication is due to some albumin, the nature of which we are unable to determine at present.

Dr. J. L. Morse, Boston: I have written and talked a good deal about acid intoxication. I thoroughly believe that there is such a condition in children, because I have had cases in which parents recognized the odor of acetone bodies in the breath and urine and in which they have been found present in large quantities before the onset of symptoms. I believe that it is the cause of some cases of recurrent vomiting. Someone said that the condition was not being recognized as often as it should be. My experience in the last year or two has been, not that it is not recognized, but that a great many other things are being called acid intoxication that have no relation to it, the reason being that someone has found a little acetone or diacetic acid in the urine. Anyone who has examined a large number of urines will be surprised to find how often these substances are found in the urine and how infrequently there are any symptoms from them. There are symptoms only when it is present in a considerable amount. One must be extremely careful in making diagnoses of said intoxication in children with vomiting and other symptoms simply because a small amount of these substances are present in the urine.

Dr. H. T. Price, Pittsburgh, Pa.: One fact that has impressed me is the tendency to consider this condition as being of nervous origin. So serious a condition is hardly of nervous origin, because we know from experience that if we permit a child to live properly we can prevent many of these attacks. Ordinarily we believe that acidosis is a serious condition, but that most patients recover. I am glad to learn that others have given a grave prognosis, because some patients have died under my care, and I have felt that I was at fault for not getting the results that we are led to believe should be obtained.

Dr. L. R DeBuys, New Orleans: I concur in the remarks of Dr. Abt, and I also feel that Dr. Morse has sounded a strong note. There is the other side to be considered, however. The tendency is for physicians to ridicule acid intoxication, and the sooner they appreciate the gravity of the condition the sooner more lives will be saved.

Dr. Zahorsky has made the same observation that I have regarding the peculiar flushing of the face. The flushing, at times resembling that of scarlet fever, is suggestive. As these patients improve, I have noticed the peculiar flushing disappear.

Another symptom of value in the diagnosis is that the temperature is usually low. The condition may start with some digestive disturbance and a somewhat high temperature. After the bowel has been cleaned out the temperature will decline. In fatal cases there is usually a gradual rise of temperature, signifying, I believe, that the means of eliminating poisons are locked up. These patients die, as a rule, with hyperpyrexia.

Dr. H. Lowenburg, Philadelphia: The point Dr. Morse brought out is important and calls to mind the history of two cases that came under my experience. One illustrates that not all cases of recurrent vomiting in children are due to acidosis. The child was 4 years of age. A diagnosis of acidosis had been made. On careful investigation of the urine no evidence of acidosis was discovered. Roentgenoscopy indicated the presence of a marked degree of pyloric spasm. An interesting feature was that the child recovered after half a dozen stomach washings and has had no recurrence for about five months.

The other was the case of an infant sent to me for recurrent vomiting with the diagnosis of pyloric obstruction. Here, too, a roentgenogram was made, and it showed kinking of the bowel in the region of the sigmoid. The infant was much constipated. The kink was the only thing that could be discovered. The pylorus was clear. The vomiting was probably reflex or toxic. This infant, too, recovered with use of high enemas of olive-oil.

Dr. Abt referred to a slough that followed the subcutaneous injection of bicarbonate of soda solution. I have given bicarbonate of soda by hypodermoclysis in about seven cases, and in each there was a slough.

Dr. Thomas C. McCleave, Berkeley, Cal.: With reference to the comment of Dr. Zahorsky and Dr. DeBuys in regard to the flushing of the face, I used the term dusky as best describing the appearance at the height of the attack. It is characteristic in the beginning that these children have a bluish, pallid ring under the eyes, sometimes a very intense white ring around the mouth and flushed cheeks. As the attack progresses and the intoxication becomes more intense, air hunger and cyanosis develop, diacetic and oxybutyric acids having a direct depressing effect on the respiratory and vasomotor centers.

I think that adenoids and diseased appendixes are of importance as sources of toxemia. We know that the liver is one of the most susceptible organs in the body to toxins of any nature. A disturbance of liver function results, and, unquestionably in my experience, removal of adenoids and bad tonsils or appendixes has worked a marvelous change sometimes in a child subject to attacks of this nature.

I purposely omitted from consideration the attacks in younger children referred to by other speakers as having been first described by Dr. Parke, as I am not at all sure that they belong in the category of the cases I had in mind.

Great care is necessary in the use of either sodium carbonate or bicarbonate under the skin or intravenously, as ordinary preparations of these drugs are contaminated; it is exceedingly important to have a chemically pure drug, or sloughs will occur. Dr. Fischer maintains that sodium carbonate is more valuable for the relief of acid conditions than the bicarbonate, for the reason that the sodium in the latter has already tied up to it as much acid as it will carry, and sodium carbonate has therefore a better combining value.

Dr. H. Lowenburg, Philadelphia: The last case of sloughing I had followed the use of Fischer's solution.

LEGAL ASPECT OF THE FEDERAL PROTECTION OF THE PUBLIC HEALTH *

W. C. RUCKER, M.S., M.D.
Assistant Surgeon-General, U. S. Public Health Service
WASHINGTON, D. C.

The public health policy of the United States has been one of gradual growth and change. In the first stage the general government assumed no authority whatsoever, other than to assist on occasions of emergency in the execution of the health laws of the state. In 1794, the Third Congress authorized the President to alter the place for holding the session of Congress if in his judgment there existed a prevalence of contagious sickness which would be hazardous to the lives or health of the members of Congress, and in 1796, he was authorized to direct the revenue officers and others to aid in the execution of quarantine and state health laws. This law was repealed in 1799. It was later reenacted. The act of Feb. 25, 1799, may be considered as the first public health law of the United States, and was the beginning of the public health work of the Treasury Department, the Secretary of the Treasury being empowered to make regulations governing the cooperation between the revenue officers and the government and the state health authorities. In 1798, the United States Marine-Hospital Service was created for the purpose of affording physical and surgical relief of the sick and injured men of the merchant marine and the navy. This act was amended by the acts of March 2, 1799, May 5, 1802, and Feb. 26, 1811. The authority of the Treasury Department to aid in the execution of the quarantine and health laws of any state was reaffirmed in 1832, and additional measures in aid of quarantine were enacted in 1866.

In the same year the first session of the Thirty-Ninth Congress, by joint resolution, authorized the Secretary of the Treasury to make and carry into effect such orders and regulations of quarantine as, in his opinion, may be deemed necessary and proper, in aid of state or municipal authorities to guard against the introduction of cholera into the ports of the United States. He was also authorized to direct revenue officers and officers commanding revenue cutters to aid in the execution of such quarantine and the health laws of the states.

It is highly probable that the passage of this law was brought about by the prevalence of cholera. This disease occurred in epidemic form in the United States during the years 1817, 1819, 1832, 1833, 1848, 1849, 1850, 1855 and 1866, but apparently fifty years were required for the people's representatives to realize that safety from disease meant its exclusion from abroad.

In the second session of the same Congress, by joint resolution approved Feb. 28, 1867, the Secretary of War and the Secretary of the Navy were again authorized to place at the disposal of the quarantine authorities of the states vessels and hulks for quarantine purposes.

The second session of the Forty-First Congress, by an act approved June 29, 1870, reorganized the Marine-Hospital Service, changing it into a compact and coordinate organization, having at its head a single officer charged by law with the supervision of all matters connected with the Marine-Hospital Service and the disbursement of funds provided for its maintenance.

The decade which followed was marked by some of the most wide-spread outbreaks of yellow fever which the United States has ever suffered. The officers of the Marine-Hospital Service, by reason of their familiarity with the disease and the fact that they were the only mobile sanitary force which the government possessed, were frequently thrown out on the firing line of yellow fever. At that time the entire corps did not exceed more than fifteen or twenty officers, yet they were sent into the worse infected localities to fight a disease whose mode of transmission was at that time unknown to the medical profession. The year of 1878 witnessed a frightful outburst of yellow fever which attacked the entire South, and for a time completely paralyzed its external commerce and its internal administration. It is estimated that during this outbreak over thirty thousand people were attacked, of which number at least fifteen thousand perished. This was the second great scourge of yellow fever in the lower Mississippi Valley, the first occurring in 1853 during the months of June, July and August, during which sixteen thousand persons, of whom eight thousand died, were attacked in New Orleans alone. The 1878 outburst, occurring just twenty-five years later, found a large non-immune population, and the disease swept up and down the Southern states like wildfire.

This impressed on Congress the fact that the sanitary policy which was then being pursued was not a wise one and that a change must be made. As a result, a law was enacted to prevent the introduction of contagious or infectious diseases into the United States. This act was approved April 29, 1878, and provided for consular bills of health and for reports by the consular officers to the Supervising Surgeon-General of the sanitary condition of the ports at which they were stationed. The Surgeon-

---

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

General was charged, under the direction of the Secretary of the Treasury with the execution of the provisions of that law and the promulgation of rules and regulations necessary for the conduct of quarantine. It was expressly provided in this law that such rules and regulations should not conflict with or impair any sanitary or quarantine laws or regulations of any state or municipality. The enforcement of the national quarantine rules and regulations was made a duty of the medical officers of the Marine-Hospital Service, and the policy was adopted that the protection of all the states against disease from foreign countries, or from one another, was the function of the federal government.

The issuance of bulletins of health had been authorized by previous act of Congress, but in the act approved March 3, 1879, an appropriation was made for the publication of these bulletins. This may be said to be the beginning of the policy of the government's issuing from time to time information of a public-health character.

This was in reality the second stage in our sanitary policy, one from which we departed in the following year and one to which we gladly returned a short time later.

The basic idea of this policy is the protection of the individual person, locality, or state by the state and municipal authorities, and the protection of the mass by the general government. It presupposes on the part of the states a pride and an unwillingness to surrender to the general government any function which they can satisfactorily discharge. On the other hand, it expects of the general government that it will protect the states against one another, that it will bear the burden when more than one state is involved, and that it will not allow the states to take harm through commerce. It expects the states to endeavor to solve their own problems, but it demands that the general government shall undertake the study of matters which concern all of the states, or which demand the services of experts for the conduct of expensive experiments.

This is a wise and far-reaching policy and one which in the end will bring about the greatest and most lasting good. Unfortunately, this was not realized at the time it was first adopted and there was created by the act approved March 3, 1879, a national Board of Health to meet the desires of those persons who were not satisfied with this form of sanitary policy. By the provisions of this act there was created a national board of eleven members, seven of whom were to be appointed by the President, the remaining four to be one medical officer each from the Army, the Navy, the Marine-Hospital Service, and one law officer from the Department of Justice. The powers and duties of this board were wide and contemplated the creation of an even larger and more powerful health organization. This power was further increased by the act of June 2, 1879, a measure which in its all-embracing character recalls bills which have been before Congress for the past two or three years.

On June 14 of the same year, by joint resolution of Congress, the Secretary of the Navy was authorized to place vessels or hulks at the disposal of the national Board of Health for quarantine purposes.

As if this were not enough, the first session of the Forty-Sixth Congress, in an act approved July 1, 1879, granted still further powers and an appropriation of $500,000 for the carrying out of this experimental sanitary legislation; office rooms were provided for the national Board of Health, and funds were provided for the publication of its reports and papers. This act also authorized the employment of stenographers and a chief clerk, and granted authority for the board to erect temporary quarantine buildings and to acquire real estate, or to rent houses for that purpose.

By an act approved April 18, 1879, the Secretary of the Treasury was authorized to contract for the purchase or construction of a refrigerator ship for the use of the board in the disinfection of vessels or cargoes, or for other purposes, and for this $200,000 was appropriated.

By joint resolution of April 18, 1879, the first session of the Forty-Sixth Congress ratified the organization of the national Board of Health. This action was necessary because the board had failed to take the oath of office. The joint resolution provided for the organization of the board without the taking of the oath of allegiance.

The following year, by the act of June 16, 1880, $100,000 was appropriated for the use of the national Board of Health, and by the act approved March 3, 1881, an appropriation of $225,000 was made for the use of that board. By the act approved August 7, 1882, $50,000 was appropriated for the use of the national Board of Health, but the law provided that the duties and investigations of that board should thereafter be confined to the diseases of cholera, small-pox, and yellow fever. By the act approved March 3, 1885, $10,000 was appropriated for the compensation and personal expenses of the national Board of Health. By an act approved March 3, 1885, provision was made for the salaries of the secretary and messenger of the board and for the rental of its offices. By an act approved March 3, 1885, $5,000 was provided for salaries and expenses of the national Board of Health for the fiscal year ending June 30, 1886. No further appropriations for the use of the national Board of Health appear in the acts of Congress, and by acts approved March 5, 1888, Aug. 1, 1888, and Oct. 1, 1888, the quarantine function was returned to the Treasury Department. There is little doubt that the persons who fathered this movement were genuinely sincere in their efforts and that they were guided by high ideals. The formation of the national Board of Health, however, was an attempt at the formation of a sanitary empire within a republic, and when the money which had been appropriated for its maintenance gave out the entire fabric fell to the ground of its own weight. On Aug. 1, 1888, there was approved an act which transferred to the Marine-Hospital Service the function and administration of quarantine, but it was not until the approval of the act of Feb. 15, 1893, that the national Board of Health was officially stricken from the roster of the United States. That organization had during the first part of its brief life the unqualified backing of Congress. Numerous acts were passed granting it authority, functions and funds, but it never accomplished what its supporters hoped for it, because the basic principle on which it rested was contrary to the spirit of the general government. This should be of value in the future, because it should never be forgotten that any institution in this country which is to endure and functionate to the good of our country must be in harmony with the spirit of American institutions. The national public health organization of the future must follow the policy of supplementing the states where they are weak, of assisting them in situations which are beyond their power and resources to control, to prevent the spread of disease in interstate and foreign commerce, and to maintain the sanitary integrity of the units entering into the formation of the general government. The national Board of Health functionated from 1879 to 1883, when it was allowed to die of inanition.

By the provisions of the act approved Aug. 7, 1882, a fund was created which has since come to bear a very important relation to our sanitary defenses. It is called the fund "for the prevention of the introduction and spread of contagious diseases." As originally enacted, the President of the United States was authorized in case of actual or threatened epidemic to use a sum not exceeding $100,000 for aid of state and local boards of health or otherwise at his discretion in preventing and suppressing the spread of the epidemic. This law was reenacted by the act of March 3, 1883; and by the act approved July 7, 1884, it was provided that the President might also expend the money in maintaining quarantine at points of danger. The act approved March 3, 1885, reappropriated the unexpended balance and added $300,000 to this fund. The expenditure of this sum, however, was authorized only in the case of threatened or actual epidemic of cholera or yellow fever. In the act approved March 3, 1891, the disease small-pox was added to this list, and in the act approved Aug. 18, 1894, the Chinese plague, or black death, was also added. In the sundry civil appropriation act approved June 28, 1902, typhus fever was included in the list, since which time these five diseases—cholera, typhus fever, yellow fever, small-pox, bubonic plague, Chinese plague, or black death—have been considered as diseases the cost of the measures against which may be chargeable to this fund. The President is authorized to spend this money in aid of state and local boards, or otherwise at his discretion, in the prevention and suppression of these diseases, and also in such emergencies in the execution of any quarantine laws which may be in force. The fund has been added to from time to time by the various congresses.

In the meantime, the United States Marine-Hospital Service had been growing, the number of its personnel was increased, and by the act approved Jan. 4, 1889, the method of appointment into the service and the salaries and commissions of its officers were regulated.

The first session of the Fifty-First Congress, in an act approved March 27, 1890, brought about a new phase in our public health policy. Up to this time, aside from the work of eradicating epidemic outbreaks within the states, the national health authorities had largely concerned themselves with the questions of maritime quarantine, leaving out of consideration the matter of the prevention of the introduction of contagious diseases from one state or territory into another, or from any state or territory into the District of Columbia, or from the District of Columbia into any state or territory.

The act referred to had to do with cholera, yellow fever, small-pox and plague. It provided that when it was made to appear to the satisfaction of the President that these diseases existed in a state or territory or the District of Columbia, and there was danger of their spread into other states, territories or the District of Columbia, he was authorized to cause the Secretary of the Treasury to promulgate such rules and regulations as would control and prevent such spread. He was further empowered to employ such assistants as might be necessary for this purpose. The preparation of these regulations was left to the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury. Penalties were attached to the infraction of such rules and regulations and the law specifically included in its penalty clause common carriers and their servants. This was the beginning of the policy for the control of disease in interstate traffic, and as will be shown has grown until it includes other diseases than the major pestilences, and it is believed that the future will see its extension to the point where common carriers engaged in interstate traffic will be regulated to the end that they will not be permitted to bring disease either to passengers or to persons living along the right of way. Such an extension was brought about in 1893 by an act which will be referred to later.

In the following year the Fifty-First Congress, in its second session, by the act approved March 3, 1891, took cognizance of the danger of the importation of disease into the United States by arriving alien immigrants, and there was added to the functions of the Marine-Hospital Service, which already included the medical and surgical relief to the sailors of the merchant marine and the management of maritime and interstate quarantine, the function of the medical examination of arriving aliens.

The following year, 1892, is important in sanitary history because of the large outbreak of cholera which took place in Hamburg, Germany. Our nation was at that time in great danger of the importation of that dread disease into the United States. This was fully realized by Congress, which, by the act approved Feb. 15, 1893, entitled "An Act Granting Additional Quarantine Powers and Imposing Additional Duties on the Marine-Hospital Service," created further barriers against the importation of diseased persons and things from abroad. This law is of great importance, and includes not only the measures to be taken at ports of departure and arrival, but also in Section 3 provides for the enforcement of quarantines between the states. Its careful study is to be commended to any one interested in the furtherance of the national protection of the public health. It may be noted that the law provides that the Surgeon-General shall cooperate with and aid state and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious and infectious diseases into the United States from foreign countries and into one state or territory or the District of Columbia from another state or territory or the District of Columbia. It is required that these rules and regulations shall operate uniformly and without discrimination against any port or place. The law provides that they may be enforced by the state or local health authorities when they will undertake to do so, but in the event of refusal or failure of such boards to enforce the regulations of the Secretary of the Treasury for the prevention of the spread of disease in interstate traffic, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and that he may employ or appoint persons for this purpose. Further, the Secretary may make additional regulations for the prevention of the spread of disease by common carriers. It is under this section that the interstate quarantine regulations have been issued, and recently they have been amended and expanded with the idea of protecting the health of passengers in interstate traffic. It is hoped that eventually they can be amended so as to include the further regulation of the transportation of the dead, as well as the regulation of the transportation of diseased persons and things. It is hoped that they can be extended to the point where many of the commoner, but none the less serious diseases from a public health point of view, can be included in the proscribed list. The recent amendments apply particularly to the water and ice supplied for use by passengers in interstate traffic on common carriers and abolish all common roller-towels and common drinking-cups and provide for the regulation of the transportation of lepers. These recent amendments have been well received by the common carriers, and already many of the railroads and steamboats are expending considerable sums in providing safe water and ice for their passengers. When the water and ice regulation shall have been applied in its entirety it will mean that every source of water-supply used by common carriers in this country shall be subject to careful bacteriologic and chemical examination at least once in every six months and certificate of such examination filed with the United States Public Health Service. This is bound to have a most beneficial effect and will raise the standard of water generally used in this country.

Quite recently the Secretary of the Treasury appointed a commission of fifteen of the leading water experts of this country to set a standard of purity for water to be supplied for passengers on common carriers in interstate traffic. When this commission shall have rendered its report and the standard set by them shall have been adopted, it will be incorporated in the interstate quarantine regulations and we shall have the first federal standard for purity of water.

The law of Feb. 15, 1893, which we are considering, gives the Surgeon-General additional authority to collect morbidity and mortality statistics in the United States and foreign countries and for the publication of the data so collected in *Public Health Reports*. It also provides for the voluntary cession by a state of its quarantine establishments to the federal government.

From time to time Congress has made appropriations for the study of special diseases. Thus, in the law approved March 2, 1895, appropriation was made for experimental investigation of the treatment and prevention of small-pox in the laboratory of the Marine-Hospital Service, and in the act approved March 2, 1899, provision and appropriation was made for the appointment of a commission of medical officers of the Marine-Hospital Service to investigate the origin and prevalence of leprosy in the United States.

In the act approved March 12, 1900, the quarantine function of the United States was extended to Porto Rico and placed under the jurisdiction of the Marine-Hospital Service, and on April 3 of the same year the Fifty-Sixth Congress in its first session passed a similar act providing for quarantine for the Territory of Hawaii.

In the act approved March 3, 1901, the second session of the same Congress amended the act of Feb. 15, 1893, providing penalties for trespassing on federal quarantines and for entering ports of the United States without a proper bill of health.

The Fifty-Seventh Congress in its first session enacted a law, which was approved on July 1, 1902, which was designed to increase the efficiency and change the name of the United States Marine-Hospital Service. This provided for a change of name to the Public Health and Marine-Hospital Service of the United States, fixed the salaries of the officers, authorized the President to utilize the service in times of threatened or actual war in such manner as would promote the public interest, provided for an advisory board of the Hygienic Laboratory and established the division of chemistry, zoology and pharmacology in the before-mentiond laboratory. It further provided for the annual conferences to be called by the Surgeon-General between the federal Public Health Service and the state and territorial health services. The Surgeon-General was further authorized to collect morbidity, mortality and vital statistics.

Not content with this most excellent law, Congress on the same day passed an act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia and to regulate interstate traffic in such articles. The application of this act has brought about the licensing of the manufacturers of the various biologic products which are used in the treatment of disease, the establishment of standards of potency for diphtheria and tetanus antitoxin and has acted as a public health measure of far-reaching importance.

In its third session, the Fifty-Eighth Congress by joint resolution provided for the publication of the annual reports and bulletins of the Hygienic Laboratory and of the Yellow Fever Institute of the Public Health and Marine-Hospital Service. This act, which was approved Feb. 24, 1905, has been the means of disseminating much knowledge of a public health nature. The same Congress, March 3, 1905, provided for the investigation of leprosy, with special regard to the care and treatment of leprosy in Hawaii. This has brought about the establishment of a leprosy investigation station, which has added greatly to our knowledge of this disease.

In 1905 an outbreak of yellow fever occurred in several of the Southern states, notably in Louisiana, where, at New Orleans, occurred the first application of the then newly acquired knowledge of the transmission of yellow fever by the mosquito. It is true that in the epidemic at Laredo, Tex., in the preceding year, the mosquito theory had been tried on a small scale, but the work at New Orleans was its first employment in what may be called grand tactics. The success which crowned the efforts of the Public Health and Marine-Hospital Service in the New Orleans epidemic inspired the Fifty-Ninth Congress, in its first session, to pass an act to further protect the public health and to make more effective the national quarantine. This act was approved June 19, 1906, and resulted in the cession of the United States of practically all of the southern quarantines.

During all this time the various branches of the Public Health and Marine-Hospital Service had been busy in their respective fields, and in the sundry civil act approved March 4, 1911, Congress added to the utility of the marine hospitals by making of them true public health hospitals. The act referred to contained the following phrase: "Provided, That there may be admitted into the said hospitals , for study, persons with infectious or other diseases affecting the public health, and not to exceed ten cases in any one hospital at one time." Thus, the marine hospitals have now become centers for the clinical study and investigation of diseases which affect the public health.

Finally, on Aug. 13, 1912, the Sixty-Second Congress passed the act referred to in the opening paragraph of this paper. This was approved on the following day. It changed the name of the service to the Public Health Service and it provided that in addition to the duties required by law the Public Health Service may study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution, either directly or indirectly, of the navigable streams and lakes of the United States; and it may from time to time issue information in the form of publications for the use of the public.

This brief review of the legal aspect of the federal protection of the public health does not pretend to be complete. The many acts which Congress has made bearing on individual problems, such as the support of vaccination, the investigation of yellow fever, and certa quasi-public health measures have not been mentioned, as it is thought that they would attract interest from the main thread of the discourse. I feel that whoever would undertake the legal reformation of the public health might find the desire to have at hand in compact form a few items, important references and the like, which should be carefully considered before undertaking the drafting of any such legislation. It is hoped that a study of these laws will make evident the fact that Congress has made new laws as rapidly as it saw the necessity for so doing, and it is evident from its action in the past that it will act with equal intelligence in the future. The misstatement has frequently been made that the federal government has enacted more legislation for the protection of domestic animals than for the protection of man. It is believed that a careful study of the comprehensive laws already written on the statute-books will incontrovertibly contradict this statement. Congress has gone about building up the public health defenses of the nation on a strong, broad basis, and any legislation which is to be enacted in the future must take full cognizance of this fact. The foundation is well laid; it remains for the people of this country to determine what sort of superstructure shall be erected thereon. If this is done carefully and with judgment, and with the ever-present idea of utilizing the vast body of laws already existent, instead of constructing a de novo edifice, we shall have an efficient and time-enduring structure. The mistakes of the past should guide us in the future, and whatever we may do, let us see to it that what we build is of practical usefulness and in conformity with the plan of our government and the spirit of our American institutions.

ABSTRACT OF DISCUSSION

Dr. Pauline M. Townsend-Hanson, Marshalltown, Iowa: I have no criticism to make of anything the government has done in the past. I want to make a suggestion or two with reference to the future. I notice that research work in regard to the conditions of man—as relating to health—is in the province of this department. Uncertainty of employment has an absolutely direct connection with health. The man out of work, or the man whose employment is inadequate during the year—or whose return for his labor is inadequate—cannot provide healthy conditions for his family. It lies within the scope of this department to delve into the question of uncertainty of employment and income to families.

Dr. James A. Hayne, Columbia, S. C.: I am sorry that the two great political parties in the United States seem to have overlooked the wonderful work that has been done by the United States Public Health Service and failed to embody in their platform a department of public health. We believe that the Democratic administration will carry out its platform and we believe that there will be a department of public health established in Washington, with a cabinet officer at its head. How this is going to be done—and whether the U. S. Public Health Service is to be incorporated in this department—we do not know; but we believe that such a health department must come if effective prevention of disease is to be accomplished.

Dr. W. C. Rucker, Washington, D. C.: I would remind the doctor that there is already a bureau of public health established by act of Congress on August 13, 1912. You mean a department, do you not?

Dr. James A. Hayne, Columbia, S. C.: Yes, a department, with a cabinet officer.

Dr. W. C. Rucker, Washington, D. C.: The question of the expansion of the breadth of public health activity has been brought up by one of the speakers. The matter of wages and of non-employment has already been investigated to quite an extent by the federal government. It has been taken up as an economic measure. It is certainly true that the question of employment as well as of housing, and questions of every thing which has to do with environment, have to do with the public health. The data are available for public health workers.

There is one thing to be thought about in connection with the expansion of any function or any work; it is better not to expand too much; you may find your butter spread out pretty thin, or you may be able to find none of it on your bread when you come to eat it. It is a wise thing, too, in thinking about these things, to go over the laws and to see that Congress has built with a breadth which none of us could have imagined; and it has placed its large foundation on the only proper basis and clear down to bedrock—the Constitution of the United States.

THE NEED OF WHOLE-TIME HEALTH OFFICERS [*]

HAROLD B. WOOD, M.D., D.P.H.
ROCHESTER, MINN.

Health is the indispensable asset of life and cannot be acquired without effort. Health to the individual is inherited; but to the nation, acquired. People have so far deviated from those instinctive habits which in their forebears maintained health that they require a professional class to teach them the principles of avoiding disease and of maintaining bodily vigor, health and efficiency. The recent elevation of public health work from a recreation to that of a profession as an entity, or from a social to a sociologic atmosphere, has placed the theory of public health on a new basis.

When the origin and transmission of diseases was little understood, the work of the health officer was uncertain and difficult, and received a corresponding response from the doubting and credulous public. Most health officers are able to produce but little in the way of results. This is due in part to the lack of public support. Many communities still either disregard the value of the conservation of public health, or else have not been shown wherein they need assistance. People are usually satisfied with existing conditions until some one demonstrates what improvements are needed. With the attitude of self-satisfaction, legislative bodies refuse to give the necessary support. The wide-spread opposition is partially due to the inactivity of those practicing physicians who are wont to be termed health officers. Even though receiving only a meager salary, each health officer should give more service for the public good than he receives compensation for, or the position might be abolished.

If a community entrusts its health, its questions of sanitation, the life of its schoolchildren, its danger from transmissible disease, its industrial conditions and its uncertain food-supplies to a busy medical practitioner, the public duties of that health officer can scarcely receive the attention they need. No time can be given for investigating, for following up contact cases, for searching for carriers or for carrying on any propaganda of reform, improvement or public instruction.

Many practitioners seek appointments as health officers with the object of establishing names, of making acquaintances or of receiving small checks without the expectation of rendering services. There are many laymen who debar from their homes the health officer who sees contagious diseases; there are those who condemn the sincere health officer's methods or opinions, or who declare that the officer is indirectly forcing people to consult him. There are many others, both in and out of the profession, who have altruistic motives and understand the import of the work. The service is discouraging to the practitioner in that it frequently causes a restraint of practice or an abuse of privilege by the public. Local professional jealousies also result.

---

[*] Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

The fear of apparently discriminating against another man's patients or of invading his territory or of losing one's own practice has put the damper on many a willing health officer. The opinion that he is booming his trade or emitting spite against others is the usual reason for the public's disregard for his attempts. It is usually the health officer who has more enthusiasm than practice, with no desire for professional friendship, and who has a free hand, not hampered by calls, friends or politics, who becomes the successful and useful health officer. The neglect or failure to perform public health service while a man is attending private practice results in public damage. This can best be obviated by the employment by a community of a health officer who devotes his entire time to the work. This is a method of procedure that is eminently philosophic.

The modern whole-time health officer is not simply a registrar of statistics, a placarder of houses or a public prosecutor. He is a compiler of statistics, obtaining those records which have not been reported by physicians and classifying all as a means for the foundation of methods for the eradication of disease. He is a public instructor, teaching how health may be maintained and explaining that rules and placards are intended only for the careless and lawless. He is a true sanitarian, who supplies information on various branches of science and industry, but all for the same purpose—the protection of the public. His office should be a bureau of information, to collect and to disperse knowledge. He should not alone formulate, but also execute, plans for saving human life. The improvement of industrial, social, scholastic and vital conditions is his work.

The health officer must of necessity be a critic. His duty is that of pointing out to others the obnoxious or the dangerous. The man who criticizes without suggesting is not the modern man. His work is not merely to inspect, but also to improve conditions in the shop and industries. To give cold condemnation without detailed directions of methods for improvement produces little result except that of antagonism. The average man resents a criticism unless suggestions for improvements are offered. These suggestions should come well within the intellectual or financial ability of the owner to construct and to maintain. A series of suggestions should begin with those simple details requiring the least work or expenditure. It is important to explain the reasons for the changes advised. The health officer who in his suggestion to a dairyman begins with a consideration of tuberculin testing or installation of a flue system will meet with immediate opposition toward all improvements. When the most simple and least costly improvements are suggested first, dairymen accept suggestions and instal the improvements willingly. A list of "Twenty Dairy Suggestions" has been circulated, beginning with "Have the herd examined at least twice a year by a skilled veterinarian." More cooperation would be obtained if the first line began with "Shovel out the manure." Rural school boards can become more interested in public health work if the first suggestion given them concerned the individual tin cup, rather than the direction for admitting light or the most acceptable desks. The instruction and arguments must come within the comprehension of the listener.

The qualifications of a health officer depend largely on local conditions and on the particular kind of work to be done. As the educational facilities for training these men become developed and become appreciated and accepted, distinct lines of public health work may be classified. As the science of curative medicine is composed of various specialties, that of preventive sanitation will be composed of even more widely divergent groups. In the larger fields the work is too voluminous for a single man. It may require only a statistician, an epidemiologist, a diagnostician or an engineer, or one with a laboratory, educational or executive training. So must the health officer be selected, according to his ability and the public needs. A man should be known not alone by the degrees he holds but also by his ability to produce particular results. All esthetic or sanitary work which has but remote connection with the public health is of minor importance when there are lives which can be saved and diseases which can be prevented.

The elimination of disease is the chief duty of a health officer. Since in smaller communities this entails on him an ability to diagnosticate infections, the health officer should be a man of medical training. In Minnesota every township is required by law to have a medical health officer. In larger cities the character of the duties may require a sanitary engineer or, at least, a health officer who is not necessarily a medical graduate. If a city's greatest health problem is the control of disease, the health officer should be a specially trained physician. When there is little danger from disease, and the city employs a health officer to direct its rebuilding along sanitary lines, to keep it clean and to instal water, sewerage and scavenger systems, a sanitary engineer would be the more efficient man. Farmers, plumbers, ministers and carpenters scarcely have the necessary training to qualify them especially for the work of the medical health officer, yet to them is frequently entrusted the local public health.

Whether or not the supervision of garbage collection, street cleaning, sewage disposal, dust eradication, drainage and plumbing should be included in the duties of a health officer is apparently of local concern. In certain places these should all be placed in the hands of another, or entrusted to the city engineer or highway department, but in some smaller cities there seems to be none other than the health officer to manage these enterprises.

If state boards of health have a right to appoint local registrars for collecting statistics, requiring the counties to pay given fees for the work, it seems reasonable to believe that the same centralized authorities have a right to appoint whole-time health officers, to fix their duties, to limit their jurisdiction and to require the local counties to pay given or fixed fees or salaries. The making of appointments by the state board of health would have a tendency to remove from consideration politics, favors, personalities and social obligations, creating more of a civil service régime. The collection of vital statistics is necessary, but the control of those live, diseased and dangerous people, whom the morbidity statistics merely record, is a greater necessity. If a state board of health has the right to appoint local registrars of statistics who draw their pay from the local counties, it has a much greater right to demand that the counties appoint health officers who are efficient; if the counties fail in this, the state board of health should have the legal right to appoint and control local health officers, fixing their salaries and requiring that the compensation for service and expense be borne by the local county or community. As the health of a community affects the state and as the presence of local disease endangers neighboring communities, the state board of health should have the authority to determine the rate of compensation for local health officers when the local community fixes the salary at such a low figure that no effective work can be accomplished.

In New York,[1] the state commissioner of health may, by law, exercise the powers of a health officer, where health officers have not been appointed, the expenses incurred by him being charged to and paid by the municipality.

To determine in what localities the whole-time health officer is first needed is apparently a power of the state board of health. With the statistics of the local morbidity, with his knowledge of the environmental, racial, industrial, hydrographic and prevailing social influences, the state health executive should be able to determine what available man is best qualified. The jurisdiction of the municipal health officer should extend beyond the confines of the city, exerting an influence over that territory which affects the health of the city. This jurisdiction is exercised in parts of Massachusetts.

The states should be divided into health districts, each district to be presided over by a whole-time health officer. The districting of the jurisdiction of health officers had probably better be considered locally. The limits of a township or a county may give satisfactory results on one hand, but not on another. In a town near the border of a county it would be absurd for the health officer to have jurisdiction in the one county alone. If a community be equally dependent on two counties for those conditions which influence its health, the jurisdiction of the health officer needs wider scope. When adjoining counties combine to employ a whole-time health officer, the various counties entering into combination should have their union sanctioned by the state board of health, which is able to judge of the advisability of giving the health officer the proposed field of jurisdiction and is able justly to divide his time between the combining communities.

The union of the various counties could well be determined by the influence of the included cities or the direction of the railways. The location of the watersheds or drainage areas, the locations of affecting industries or food sources, the location of obstructing rivers or mountain ranges and the lines of commerce or school attendance are all factors which may be used in determining the size and shape of the district to be covered by the health officer. The ease or rapidity of railway travel for the health officer should be considered. It may be necessary to gerrymander rather than to select symmetrical areas as health districts. The topographic locations of those communities best or least able or willing to finance health projects is no small consideration. Neighboring towns can cooperate to employ one health officer who can serve both communities with the adjacent territory.

The size of territory or the population which can adequately be covered by a whole-time rural man would vary widely. It would depend partly on the man, largely on the particular line or lines of health work he was pursuing, and, to no inconsiderable degree, on the kind of transportation at his disposal. These factors would have corresponding weight whether the officer worked alone or with a corps of assistants.

In the recent state legislatures the subject of whole-time health officers was considered. In Minnesota a bill was introduced permitting communities or counties to employ such officers and providing an appropriation permitting the state board of health to assist in establishing the work. This bill died somewhere in the house committee.

In New York a bill to establish supervisory county health officers was passed. The plan provides for the retention of the present town and village health officers, but subordinates these to new officials who are trained public health experts with jurisdiction over larger districts. The state shall be divided into twenty or more districts. The sanitary supervisors are required to be physicians. The law does not specify the salary to be paid these supervisors, but it has been stated that $3,000 was the salary recommended. The law specifies that the minimum salary for the health officers of towns and villages shall be $800, and for towns with a population of less than eight thousand the minimum salary shall be equivalent to ten cents per inhabitant of the community served.

In Massachusetts there are a few whole-time health officials having jurisdiction over rural territory. Their salary is small, varying from $900 to $1,500.

In Michigan a bill drafted by Dr. Victor C. Vaughan was introduced providing for the division of the state into health districts, composed of one county each, except that each city of more than eighteen thousand should form a separate district. Any two counties having a population of less than twenty thousand might organize into a joint health district. Each district was to have a health commissioner, appointed for four years, whose salary would be from $1,500 to $3,000, according to population. This bill failed of passage.

The Pennsylvania county health officers are not whole-time men. They are appointed by the commissioner of health and are compensated by the state at the rate of $1.25 per hour, with expenses.

The value of a health survey for determining the needs of many communities is great, but not too much time or money should be expended on the survey. In a survey numerous conditions which need attention may be brought to light for the first time. The survey can be undertaken by an efficient, unbiased health officer and should cover all the influences over health arising from social, economic, educational and industrial conditions, from child welfare and the origin of disease to factory conditions and food-supplies. The information properly weighted will clearly indicate, as do weighted morbidity and mortality rates, the need of following some particular lines or locality in public health work.

In many localities the physicians probably do not see one half the cases of some infectious diseases. In an outbreak of 166 cases of measles in Rochester, only fifty-two cases were seen and reported by physicians, 114 being located by other methods. Of these 114 cases, however, fifty-seven were secondary cases occurring in homes already attacked, fifty-seven new cases being found in unreported households. The value of collecting complete morbidity reports as an indication of the health and need of a community is evident. Since the registrar usually receives these reports only from physicians, the records are far from accurate, because for the light cases no physicians are employed and the secondary cases in a household are not likely to be reported even though a doctor be in attendance. The light infections being the more dangerous to a community, it is important for their whereabouts to be known that thoughtless and indiscriminate exposures be checked. By the discovery and control of these mild cases the prevention of serious outbreaks is accomplished.

---

[1] State of New York, Tr. 1909, chap. 49, amended 1913, as chap. 559, xcii.

The hunting up of the unreported cases will, almost alone, be sufficient excuse and enough financial gain to recompense a community for adopting whole-time officers. If, by this means, sixty adults a year are prevented from contracting a disease which indisposes them for three weeks, the money saved will supply a health officer. Virtually, two cases of sickness, each of a week's duration, prevented each week will enable a community to employ the services of a whole-time health officer.

A large proportion of contagious diseases are contact cases occurring within the original household. Physicians have a tendency not to report these cases, probably considering the house, not the case, the numeral of morbidity statistics. The importance of knowing the secondary cases is for determining the efficiency of the isolation practiced, the length of incubation and infectivity, the necessity of fumigation and the time for release from quarantine. As shown by experience, the records of these secondary cases can seldom be obtained unless there is a systematic method of follow-up of the original cases with their contacts, which could be accomplished by a man who has the necessary time to devote to the work. When cases of transmissible disease occur, all exposed contacts should be regarded as suspects, being followed up before they in turn have the opportunity to transmit infection. The address is obtained of all susceptible children who are exposed. After the minimum incubation period has nearly elapsed, these contacts are visited, excluded from school and isolated if possible, until the maximum incubation period has passed. This plan may encounter some public opposition until its necessity is clearly explained. After the minimum incubation period has passed, it is advisable to placard the homes of those who are exposed and are susceptible to measles, scarlatina, whooping-cough and small-pox. It seems advisable to include whooping-cough with measles in the list of reportable diseases, and for smaller towns rubella and mumps, making every reportable disease a placardable disease. The results in Rochester show that isolation and placarding have been the greatest factors in decreasing disease. Many houses are not placarded early enough because these contacts cannot be discovered. The rules following placarding have been generally observed, and no outside secondary cases have developed from the placarded homes.

The municipal health officer should be apprised of cases of transmissible disease which occur in the immediate locality which supplies food or water to the city. The cooperation between rural and municipal health officers may frequently prevent great damage being done to the city. Should a country physician or rural health officer learn of the probable contamination of a municipal water-supply by typhoid discharges, the city should immediately be notified of the facts. When the county practitioner is called in a case of typhoid, he should immediately notify the local health authority of the conditions, giving all connections, present and remote, that the patient has had with any supply which later becomes a public food or drink.

The control of contagious diseases in schools depends on the exclusion of the children before they begin to show symptoms. This may be accomplished by following up all susceptible children who have been in contact with infective cases, and excluding them from school after the minimum period of incubation for the particular disease has passed. The homes should then be placarded and the children watched until the maximum incubation period has passed. Whether they develop the disease or not, the children should be returned to school at the earliest day after the stage of infectivity has passed. Most people are not able to give the names of all others with whom their children have come in contact during the previous few days, and those who are thereby overlooked are sufficient to keep the exanthems endemic in any city.

When a case of communicable disease appears in the country, it is the duty of that community to prevent transmission of the disease. Some one by a personal visit should obtain a list of the addresses of all susceptible persons who have recently been exposed. Each locality into which they have gone has become endangered. To check the development of multiple foci the people should be notified, that approximate isolation may be provided before the infective stage begins. A notification is due the various school authorities. Should some exposed children attend a city school, the authorities there have a right to expect some notification, that the infection may be kept from among them. When those exposed have passed the minimum incubational period, they should be examined that the appropriate measures may be instituted. The known infected patients should be seen even before they are ill enough to require a physician. By the time their doctor sees them they have done the damage of infecting new households. The first patients to develop exanthems are the ones who most concern the public health official and should receive directions from him. The logical person to discover these early cases is the health officer. If the health officer would only find and isolate these, there would be fewer cases later. The early inspection checks the outbreak. The multitudinous inspections take much time, but it should be the purpose of the health officer to devote much time, his whole time, to the work.

With the perfection of state-wide organizations of whole-time health officers and the formation of the much-needed national Department of Health, a cooperative system will be developed, with relationships similar to, but with affiliation closer than, the state militia with the federal army.

ABSTRACT OF DISCUSSION

Dr. W. C. Rucker, Washington, D. C.: As nearly as I can sum up the paper, it means, first, that there should be persons who devote all their time to caring for the public health, and, secondly, that they should go about this in certain ways. Health work should be in the hands of professional health workers. There are too many "swivel-chair" sanitarians in this country. The people of this country are practical, hard-headed people, and when you do a thing they want to be shown why.

In a certain city in which I was once engaged in sanitary work, we were endeavoring to teach the people that it was dangerous to distribute garbage promiscuously. We had a large number of volunteer health officers, not medical persons at all, but persons who were engaged in this work as a social pastime and as a "temporicide."

I take issue with the first paragraph of Dr. Woods' paper. If I understand him correctly, he stated that the sanitary instinct of the people is retrograding. I think that the sanitary instinct of the people is just as strong as it ever was; but the fact is this—that when we get a crowd of people together in a small area, we are violating biologic laws; unless we throw around them certain protective systems, these people are going to die of their own excretions; and the task of the practical health officer is to protect people against their own excretions.

Dr. W. A. Howe, Albany, N. Y.: The more I see of this question of public health, the more I am convinced that the public health is a public business, and not a public philanthropy; and I think, as Dr. Rucker has just said, that too many people are meddling and interfering with things about which they know nothing. In New York State we have had our greatest trouble in financing our public health business. Last year $176,000 were available for the entire state of New York with which to look after the health of its people, exclusive of the city of New York. That amount for a great state like New York is too small. We are fortunate to-day in having a governor and a legislature who have looked at the price of public health from the right point of view. We are in a position now to divide the state into twenty districts and place at the head of each district a supervisor who receives $3,500 a year and devotes his whole time to the work of the district. We are also in a position to have nine divisions in our department and to place at the head of each division a director who will receive $5,000 a year for his services. Our commissioner will receive $8,000 per year, instead of the pittance of $3,500 with which he began. In other words, the state of New York to-day is recognizing the fact that the public health is purchasable and is getting ready to pay for it. If we fail in our work, the discredit will be to the administration of the health affairs of the state.

Dr. **Otto P. Geier**, Cincinnati: I believe the statement that the full-time health officer is paid in dollars and cents as well as in health is not arguable. In Cincinnati the salary of the health officer was raised from three thousand dollars to five thousand dollars. During the period in which this full-time health officer has been working the health appropriation has increased from fifty thousand dollars up to sixty thousand dollars. It appears, therefore, that that health officer on full time had been able to show the community that full time pays and that good health work pays.

We have a greater difficulty, however, than the one of proving that a full-time health officer pays, and that is, to entice the community into wanting a health officer on full time. We can agree that it pays, but how are we going to get the thousand and one communities of the country to see the truth of this principle? I do not know whether the American Medical Association owes that to the country, or whether it owes it to this section, but it seems to me that some propaganda should be started to induce communities to want good health.

One other point impressed me. I wonder whether we as hygienists are paying enough attention to the new movement of social service. If we desire morbidity reports that are worth while, then we must have these diseases reported. I believe in better cooperation between the social workers and the health department. The social-service worker, acting in cooperation with the health department, will bring forth cases which otherwise escape absolutely and which are foci of infection to the community. I believe, likewise, that the health officer can afford to put some emphasis on this subject just now, because in giving a better interpretation of his work and by injecting social service into the institutional life, the quarantine capacity of our hospitals is increased. In Cincinnati we have increased the capacity of our hospitals by excluding the unworthy cases, about 16 per cent., and have been able to take care of about 20 per cent. more cases of the fever and contagious type.

Dr. **J. N. Hurty**, Indianapolis: The all-time health officer is certainly coming. In Indiana the state board of health presented a bill in which it was provided that every county should have an all-time county health commissioner to serve four years. That is the time limit in our constitution. The bill, we thought, was a good one, well prepared, and well thought out. It did not pass. The opposition came from the health officers already in office, from the local league of medical freedom and the Christian Scientists. In order to secure all-time health officers, we must fight the present health officers. In Indiana every county has a county health commissioner, every city has a city health officer, and every incorporated town has a town health officer. Their duties and power are well defined. In all there are 643 of these officers. The new proposition of the board of health would cut them down to about 120. The increase of expense would be about sixty thousand dollars a year over what it now is. But two-thirds of the money now spent is wasted, because of inefficient health officers and too many of them, and because they do not give all their time to the work, but must earn their living practicing medicine. Until the present system goes, the very best health work cannot be done.

Dr. **Pauline M. Townsend-Hanson**, Marshalltown, Iowa: In order to get rid of the opposition of which Dr. Hurty just spoke and which will spring up wherever these health bills are introduced into the legislature, we do need the women; we need to have the lay public aroused, organized and educated. The profession must teach the lay public to become actively interested in public health work. In my own county (Marshall County, Iowa) there are from thirty-five to forty-five physicians; and in Marshalltown there are sixteen thousand people. I do not know the population of the county, but it is not for these thirty-five or forty-five physicians to say to the people, "You shall do this, that and the other thing for your health;" it is for us as physicians to teach them the scientific data that we know in regard to health, and for them to tell us what they will have. In an effort to get that arrangement, we have formed an association of the lay public for Marshall County. It is a representative body, composed of every organization in Marshall County that is willing to send delegates; and every organization in Marshall County not willing to send a delegate will be considered a custodial member of the Marshall County Health Association. This health association has a board of officers, and on this board of officers are represented the mothers' club movement, the women's clubs, political parties, churches, the schools and the medical profession. The call for a conference at which this organization had birth last month was signed by the president of the county medical association and by the county chairman of the Committee on Public Health Education Among Women of the American Medical Association. It was supported by the ministerial association, and by the county supervisors, and the county supervisors defrayed expenses.

It seems to me that an organization of that kind is an essential factor in furthering this work of sanitation.

Dr. **E. F. Otis**, Peñuelas, Porto Rico: We have accomplished in Porto Rico what has been forced on us by circumstances. I am heartily in agreement with Dr. Wood that there should be a local health service that is not governed through political influence; and I recommend the civil-service method. Thus far, we are getting splendid results. Education is one thing that we need in the management of the epidemics, and in order to secure that we must work with the people and be one of them, so far as we consistently can. This was illustrated in an epidemic of typhoid which we had in my town. The people were ignorantly prejudiced against all forms of sanitation when we started the work. We went right into their families and told them the dangers of the infection and how to avoid it. For those who were able to read, we posted the mimeographic copies of instructions about typhoid on the inside walls of the house and told them that it was their duty to read these instructions daily. By that means we gradually educated them. Afterward we obtained the support of the children. Whenever there was a sick person in the town the children would tell us about it. So by gaining their sympathy and support, we find that we are able to do much more than by emphasizing the official side.

Dr. **M. W. Richardson**, Boston: Dr. Wood spoke of the state inspection system in Massachusetts and of the salaries paid to inspectors as being from nine hundred to fifteen hundred dollars annually. That statement was erroneous. Our health district system consists of twelve districts, and the pay of the district inspectors, who are medical men in all instances, is approximately two thousand dollars a year. The state, however, does not at present require all the time of these inspectors and that is, of course, unfortunate. We hope, however, in the near future to obtain larger appropriations for this work so that we can command all the time of the inspectors and pay them more adequate salaries. As a matter of fact, our experience has been that these men, even under present circumstances, have given more and more of their time to the public health work and that their practice has actually gone to the wall. They have, therefore, given practically all their time to the public health work for a very small and inadequate compensation.

DR. HAROLD B. WOOD, Rochester, Minn.: It is an advantage not to take a practitioner of medicine who is licensed to practice in the state and gradually absorb him into the service, because people will many times request him to do medical service, thereby taking up his time. He should be so placed that he is not permitted by law to practice medicine within the state. The work of publicity must be frequent and constant.

OSTEOCHONDRITIS DISSECANS*

JOHN RIDLON, M.D.
CHICAGO

My excuse for reporting these three cases is that the condition is so rare that many eminent internists and general surgeons do not take it into account when considering the diagnosis of knee-joint trouble. Further, of the cases that have been reported, few have been presented in connection with roentgenograms showing typical conditions, and without roentgenograms I cannot well understand how a certain diagnosis can be made prior to operation.

REPORT OF CASES

CASE 1.—A man, 38 years old, was seen July 10, 1911. There has been trouble for three or four years in the left knee, though no cause for it is known. It is stiff after sitting and is sensitive at times. It has been materially worse for the past month.

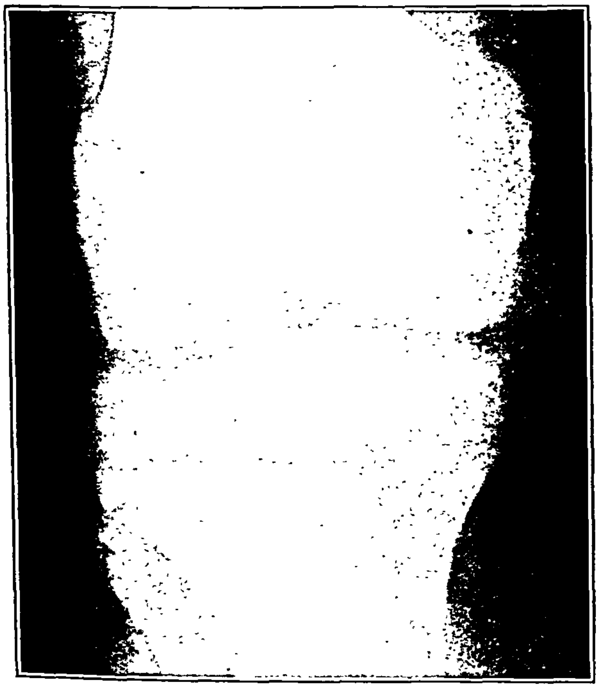


Fig. 1.—Case 1. Normal knee. Anteroposterior view.

Examination.—The patella floats, but does not "click." The midpatellar circumference of the left knee is three-fourths inch greater than the right; just above the patella it is 1¼ inches greater. There is no restriction of motion and no muscular atrophy.

The roentgenogram shows a typical piece as large as a prune pit at the bottom of the inner condyle of the femur. An operation for the removal of this piece was advised.

I discussed the case with an eminent general surgeon, who admitted to me that he had never seen or heard of the condition. I sent the patient to him for examination as a subject of interest. After the examination the patient reported to me that the eminent general surgeon had advised against an operation for the removal of the detached piece and had said in substance that he had cured many such knees by the injection of iodoform. Since then I have not seen the patient. Recently, March 30, 1913, the man wrote me that in August, 1911, the surgeon aspirated the knee and injected iodoform emulsion; after which he wore an elastic knee-cap. Eight months later, April, 1912, the knee puffed up again and became somewhat stiff and painful. The injection was repeated, May, 1912, a few months after that the knee was so much better that the patient discarded the knee-cap, and for a number of months the knee has felt entirely normal.

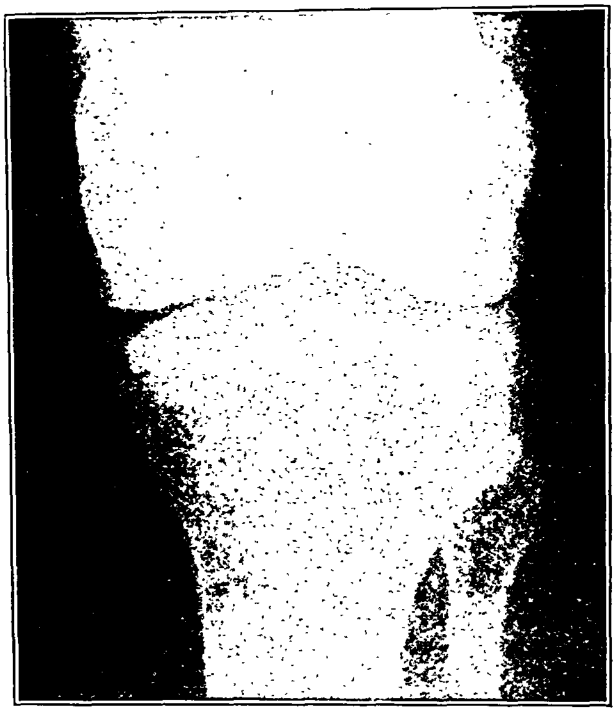


Fig. 2.—Case 1. Osteochondritic knee. Separated piece showing on bottom of inner condyle of femur.

CASE 2.—Man, 27 years old, was seen by my partner, Dr. Charles A. Parker, Aug. 12, 1911. For five or six years there has at times been a tendency to contraction of the right hamstring muscles. Usually the knee is not painful; but it is somewhat so during damp weather. The knee has never been swollen or stiff except as above mentioned.

Examination.—The patient walks with a limp and with the right knee held flexed at an angle of 15 degrees. The knee can be fully flexed, but lacks full extension by about 15 degrees. The site of the pain is along the side of the biceps tendon. There is no swelling; the leg measurements are identical. The man is a railway employee and jumps on and off a train without pain. The roentgenogram shows practically the same condition as in the first case.

Removal of the detached piece was advised; but the patient did not return, and has not replied to a letter of inquiry with regard to the present condition and what has been done for it.

CASE 3.—A man, 24 years old, the son of a physician, was brought under my observation in September, 1911. He first experienced trouble with the knee after playing hockey while in college some six years previously. The patient called the trouble "a throwing out." Just before I was consulted the knee had again given trouble while swimming.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Examination.—The knee showed no swelling, no tenderness, no restriction of normal flexion and extension and no sensation was felt by the examiner's hand when the knee was flexed and extended. The roentgenogram showed a detached piece, not on the lower surface of the inner condyle as in the other cases, but on the outer aspect of the condyle. After viewing the roentgenogram it was possible to feel the detached piece which had before escaped our notice. An operation for its removal was suggested and was refused by the young man's father.

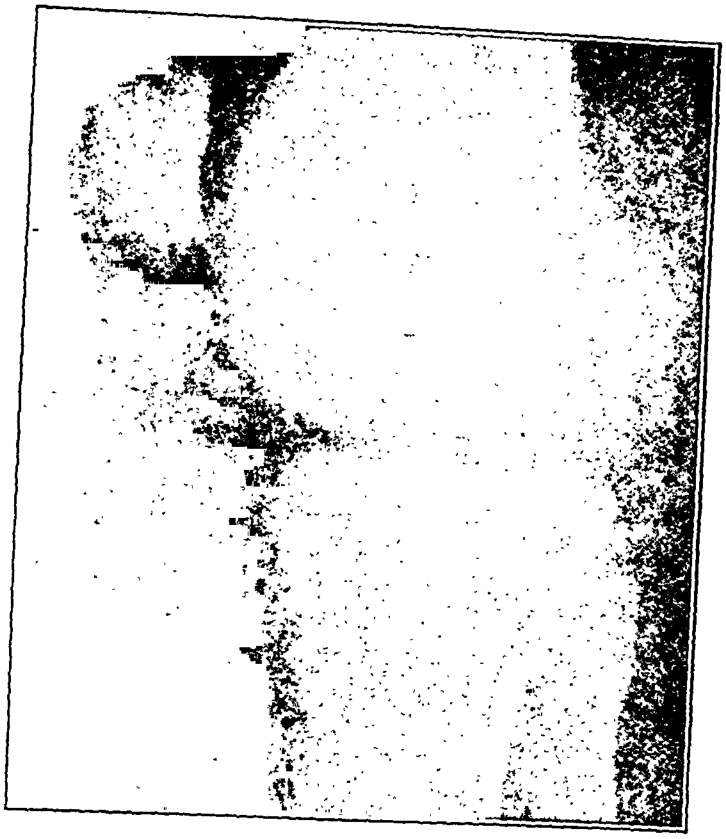


Fig. 3.—Case 1. Lateral view of normal knee.

March 4, 1913, the patient wrote that after my examination he wore a rubber knee-cap for some time and that the knee seemed well. But while in the Michigan woods last summer, some ten months after my examination, he often experienced a tightening of the cords and a kind of grinding sensation in the knee-joint after exercising freely. At the present time the knee seems to be practically normal except that it is about an inch larger than the other knee. This enlargement the patient thinks was present when I examined him, but my notes are lost and I do not remember that the knee was swollen.

Here, then, in three healthy, active and vigorous young men are three knees that have given trouble only a little throughout a period of many years; which show nothing save possibly a little swelling and a lack of full extension at times from contracted hamstring muscles; nothing on which to base a diagnosis until we come to a careful examination of good roentgenograms. Nothing is to be learned from the treatment of these cases except that they may go on for years giving little trouble. The treatment of the first case by the eminent general surgeon by aspiration and injection of iodoform is too absurd to warrant comment.

SUMMARY

Now let us consider for a moment what is known and thought by others about osteochrondritis dissecans, what has been done and with what results. My attention was directed to this condition by Freiberg's very complete report of a case.[1]

Freiberg's patient was a girl, 20 years old, having trouble with both knees. There had been pain and frequent joint-locking since childhood. At 17 years of age, while in Russia, both knees had been opened and loose bodies removed, which were afterward seen by the patient. A second operation became necessary because of the appearance of more loose bodies. No roentgenograms were made in Russia. These operations afforded relief. At no time had there been any injury to the knees that was remembered. On examination by Freiberg pain was complained of in walking, but more on standing. The right knee was more troublesome than the left. Both knees appeared to be somewhat swollen, but both had normal motion. There was no muscular atrophy and no crepitation or grating on motion in either joint.

Roentgenograms showed two separated pieces on the lower surface of the inner condyle of the right knee. The roentgenogram of the left knee showed no loose pieces, but the lower surface had lost its normal convexity and was somewhat concave, and the condyle had lost somewhat of its vertical bulk.

When the right knee was opened a loose body, the size of a cherry, was found, attached to the inner condyle by a slender pedicle of connective tissue and synovial membrane. This was removed. Nothing was seen of the two fragments shown in the roentgenogram or of the defect of the inner condyle. The cartilage appeared of different color here than elsewhere, and pressure on it seemed to indicate that it was loosened from the underlying bone. This was left alone, as Freiberg at that time did not know that Ludloff had cut through the cartilage and removed the loose fragment in a similar case. In the left knee no loose body was found. The mesial condyle of the femur appeared unusually flat and somewhat irregular in surface, but was covered with cartilage of normal appearance.

Ludloff[2] (still quoting from Freiberg) reports two cases in which the diagnosis was based on the roentgenogram and was confirmed by the operation. In both cases the roentgenogram showed a body about the size of a date-seed which had apparently separated from the inner condyle of the femur opposite the insertion of the posterior crucial ligament. It appeared to lie in a cavity hollowed out of the condyle. In the first case the cartilage was intact over the body and it was liberated only by incision; in the second case a part of the

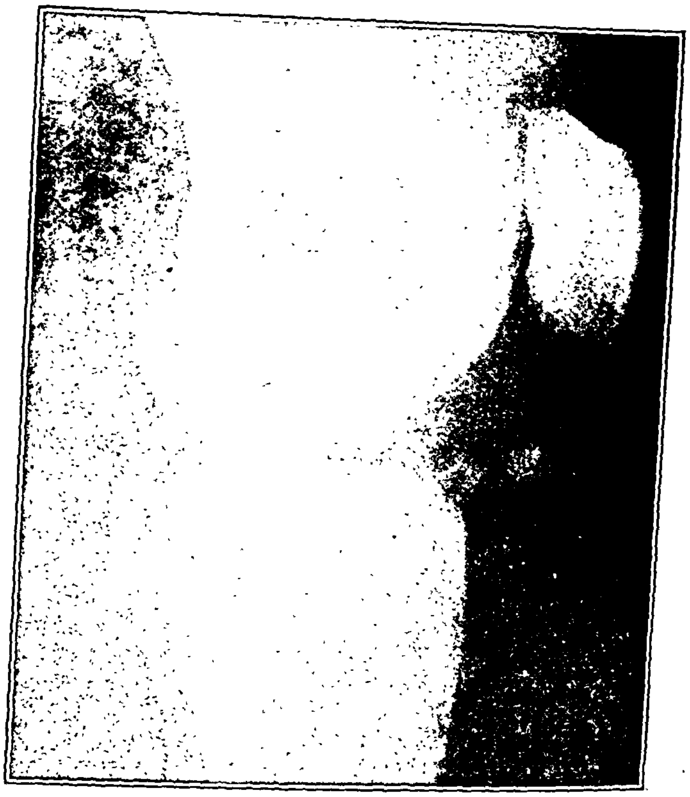


Fig. 4.—Case 1. Lateral view of osteochondritic knee, showing separated piece on inner condyle.

---

[1] Freiberg: Am. Jour. Orthop. Surg., February, 1910, viii, No. 3.

[2] Ludloff, Arch. f. klin. Chir., 1908, lxxvii; Centralbl. f. Chir., 1908; quoted by Freiberg, see Note 1.

bone fragment had already separated as a free body. In this case the other and supposedly normal knee presented in the roentgenogram a similar condition.

Freiberg credits Koenig[3] with the first description of this knee-joint affection and the name. It appears to the writer that our present knowledge of this condition does not warrant us in discussing its relations to other loose and partially detached bodies in the knee-joint, or to its possible relation to osteo-arthritis.

72 Madison Street.

ABSTRACT OF DISCUSSION

Dr. Albert H. Freiberg, Cincinnati: I think that the first two cases Dr. Ridlon showed are typical examples of this condition, and I consider it safe to prophesy that, if we may follow these cases, it will be found that loose bodies will appear in both of them eventually. A great many years ago, Koenig suggested the existence of a distinct and separate disease to which he gave the name of osteochondritis dissecans as the explanation of loose bodies, particularly in the knee and the elbow, for which no other explanation previously given had proved to be adequate. Previous theorizing on the subject had been unsatisfactory. These bodies had been supposed to be due to the coagulation of fibrin in the synovia of the joint, to the knocking off of some pieces by traumatism, etc.; but that they resulted from a distinct and separate affection of the bone and cartilage had not even been suggested by any one before his time. Koenig's conclusions had been arrived at as the result of the examination of these knees during operation. It seems to me perfectly evident that we have here a distinct disease, which presents characteristics unlike those of any other disease of the joints which we encounter. I do not think that the disease can be considered osteo-arthritis simply. It was the view of Dr. Woolley and myself, as the result of the pathologic examination of the material from this knee, that it was likely that vascular changes should be regarded as the causative factor in the production of the condition and the loose bodies that resulted.

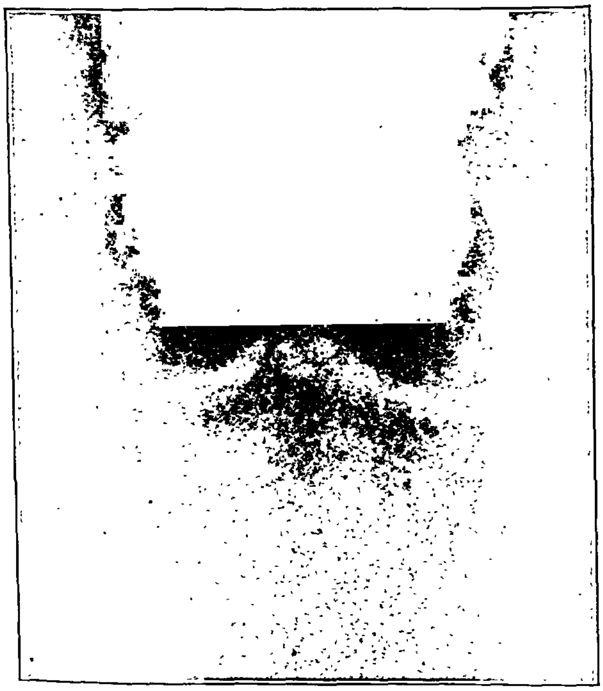


Fig. 5.—Case 2. Separated piece on bottom of inner condyle.

The question of what should be done for a patient giving the history of the condition that these patients of Dr. Ridlon present, with no condition calling for the opening of the joint and the removal of the loose body, is a matter on which there may well be some doubt in our minds. It is not inconceivable, however, that bodies that have been loosened from their surrounding bases, as these have been, as the result of the pathologic process may again become adherent, and that therefore loose bodies need not necessarily result. I should consider that if a person were in a walk of life that would call for a considerable use of the knee, so that attacks such as Dr. Ridlon has described would occur frequently, it would be justifiable to open the knee and remove the offending material. The operation would not be other than an ordinary arthrotomy in any of its characteristics, I believe.

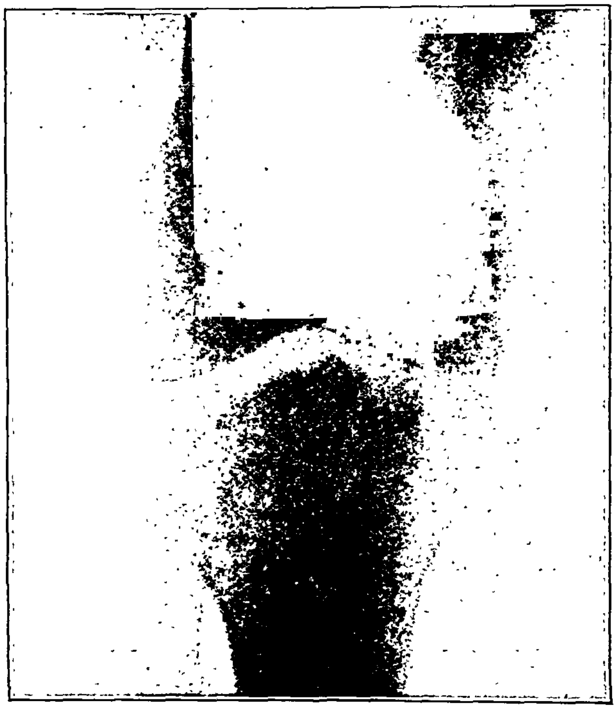


Fig. 6.—Case 2. Normal.

Dr. R. T. Vaughan, Chicago: Last year I saw a case with Dr. A. E. Halstead in which we operated for a foreign body in the superior recess in the knee. After we took it out, we found that on one side it was distinctly bony and on the other cartilaginous. On making a more careful examination of the roentgenogram, we discovered a little indentation, shaped like the foreign body, over the internal condyle of the femur. On looking up the literature of the subject, it seemed to me that such foreign bodies have been interpreted in the past as quite pathognomonic of arthritis dissecans; and we so considered this case, although we had no further evidence as to its possible etiology beyond the early trauma.

Dr. Emil S. Geist, Minneapolis: I should like to ask Dr. Ridlon how he explains the symptoms in the case he cites in which, if I understood him correctly, there was no apparent destruction of the articular cartilage.

Dr. John Ridlon, Chicago: In answer to Dr. Geist, I do not know why these joints with the cartilage apparently normal on the surface have symptoms.

As to the tibia, I know my anatomy well enough to know that the top of the tibia has terminal arteries, as I am told the internal condyle of the femur also has.

Dr. Albert H. Freiberg, Cincinnati: Lexer's work shows that there are terminal arteries in the upper end of the tibia. It is the same in the elbow. That is the explanation of the fact that most loose bodies are found in the knee and the elbow.

Dr. John Prentiss Lord, Omaha: I am reminded of a case that I reported some years ago, in which there were eight large bodies of this kind in a joint, and the symptoms had become so distressing that the patient was unable to carry on his occupation and was incapacitated for months at a time. The bodies were so large and irregular and were so placed that the only way in which I could remove them was by dividing the patellar tendon, opening the joint wide and turning it backward. It was then only with difficulty that I could remove the bodies from behind the condyle. The radical operation for the relief of the condition in this extreme case was rather unprecedented, and the result was ideal. There was perfect primary union and perfect restoration of function. The case was extraordinary on account of the size and number of the bodies.

---

[3] Koenig: Deutsch. Ztschr. f. Chir., 1888, xxvii, quoted by Freiberg.

Dr. Albert H. Freiberg, Cincinnati: The process in which a large number of free bodies are found in the joint is different from this process of osteochondritis dissecans. That arthritis deformans or osteo-arthritis results in the production of large numbers of free bodies in joints has long been known. There is no discussion as to their nature. When there are eight or ten, or from fifty to one hundred, of these bodies, the cases are osteo-arthritis; the pathology is perfectly apparent, and we usually find the other changes of this disease.

Dr. John Prentiss Lord, Omaha: I am fully aware of the point that Dr. Freiberg has made. I had an opportunity to have the joint wide open and could see the various points on the articular surface—particularly on the condyles, one part of which was flattened by the casting off of these bodies. They were of such irregular bony consistency that they were entirely different from ordinary joint mice, so-called. In connection with the same paper, through the courtesy of the late Dr. Bernays, I exhibited a pint bottle containing 580 bodies of this kind, which were quite large. They were all polished, however, and were evidently produced by the process that Dr. Freiberg has referred to. It seems to me that the condition found in that joint would indicate that my case was of the particular type under discussion.

RESULTS OF BONE PLASTIC AND GRAFT OPERATIONS ON THE SPINE FOR THE CURE OF POTT'S DISEASE *

JOHN JOSEPH NUTT, M.D.
NEW YORK

In assuming the position of surgeon to Sea Breeze Hospital in November, 1912, I received under my care ten patients who had been operated on for tuberculous disease of the spine. Five other patients who had been operated on and discharged have been examined by me, some of them several times. Thus I have had the opportunity to study the results in fifteen cases.

Fully realizing the importance of correctly interpreting these results, on account of the influence this report may possibly have in either deterring others from or encouraging them to adopt these operations, I have attempted a tabulation of all the factors which are of value in reaching a conclusion in each case and present copies of the tracings of the kyphoses taken from the history sheets. After a study of the temperature charts, it did not seem worth while to reproduce them. The rise and fall for months before the operation was in each case almost identical with the curve as charted for months following the operation. I worked out some of the averages. One case, for instance, had an average temperature for August, 1911, of 98.94, and for August, 1912, of 98.77; in Case 4 the average for May, 1911, was 98.8, and for July, the month following the operation, it was 99.2. Those who were running rather high temperatures before the operation, continued to do so afterward. Nor did a study of the changes in weight of these patients throw any light on the success of the operation; there were no great changes except in those who did remarkably poorly.

The plastic operation consisted in splitting the spines of several contingent vertebrae in a plane coincident with the anteroposterior mesial plane of the body, fracturing these split portions near their bases, bending one-half of each spine upward and the other half downward and with sutures securing each half to the opposite half of the vertebra above or below, as the case might be.

The graft operation consisted in transplanting a piece of bone from the tibia of the patient to a bed made for it by splitting the spines of the vertebrae to be immobilized.

Case 1.—The patient had treatment for one year and nine months before operation. Tracings show some increase in deformity but the patient was without orthopedic treatment for three months while in another hospital for scarlet fever. At the time of operation the disease seems to have been under control. Nine months after operation all protection was removed. Four months later stiffness of the muscles was noted in the history and soon afterward frame treatment was resumed. The patient is at present wearing a jacket.

Case 2.—The patient had marked kyphos when admitted. The general condition was good; there was no muscular spasm and no sign of abscess. Treatment was with Calot jacket. The child did not stand well and two months prior to operation was placed on a frame. Eight months after operation protection was removed. One week later: "Child walks somewhat awkwardly but has no pain. Spine flexible except region of operation where it seems rigid." Seventeen months after operation: "No sign of local activity although child rests herself with hands on knees occasionally. To be kept in bed one-half of each day." One month later, Oct. 1, 1912: "Has grunting respiration. Plaster-of-Paris jacket applied."

Case 3.—The patient was under treatment for four years and eight months before operation. There is no history of abscess formation or evidence of the disease not being under control. Following operation a plaster jacket was worn for eight and a half months. Eight months later the patient was discharged. Examination Jan. 9, 1913, showed some increase in deformity, but no evidence of muscular spasm.

Including the eight months' plaster treatment subsequent to the operation, this spine was treated by apparatus for over five years and, taking into consideration the absence of any history notes pointing otherwise, it would seem to be a reasonable conclusion that the disease was arrested; certainly the spine was in excellent condition, and, as the deformity increased after the removal of all support, the benefit of the operation in this case is doubtful.

Case 4.—Examination on admission: "Condition fair. Stiffness in upper part of spine. No sign of abscess. Lymph-nodes enlarged on both sides in cervical and axillary regions."

History would indicate that treatment was not efficient. Examination, April 15, 1913: "General condition poor. Has had whooping-cough since discharge from hospital. Grunting respirations. Deformity increased."

Case 5.—The patient was admitted a few days after operation. History notes were indicative of progress until March 26, 1912: "Spine O. K. No spasm. Spasm of left psoas. To be kept in bed. Some thickening in left iliac fossa."

October 15: "Psoas contraction nearly disappeared. No abscess tumor can be felt. Is running about without symptom."

Nov. 7, 1912: "Limited extension of left thigh. Discharging sinus. Walks with difficulty and every evidence of apprehension."

Case 6.—On admission: "In good general condition. Marked kyphos dorsolumbar region. Spasm and rigidity of back muscles."

After two and one-half years' treatment: "General condition excellent. Considerable recession of kyphos."

Postoperative notes show spine to be in good condition.

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

RESULTS OF OPERATION IN FIFTEEN CASES OF POTT'S DISEASE.

	Location of Infection. Admitted.	Age on Adm. Yrs.	Duration on Admission. Mos.	Length of Hospital Treatment before Op. Yrs.	History Note before Operation.	Condition at Time of Operation.	Date of Opera'n.	Nature of Oper.	Time after Op. all Protection Removed. Mos.	Length of Hospital Treatment after Op. Mos.	Time after Operation and Nature of First Sign of Insufficient Protection.	Present Spinal Aprts.	Deformity Increased as Shown by Tracing.	Muscular Spasm Present.	Operation Beneficial.
1	11 D.—1 L. 6/26/09	2½	6	1¾	3/9/11. General condition good. *Still on br'd frame.* Spine fairly flexible each side of kyphos.	Fair	4/ 1/11	Plastic	9	‡	6 mos. *Peculiar walk*	P. P. J.	Yes	Yes	No
2	9 D. 6/21/09	3	?	1¾	12/29/10. Spine fairly flexible each side of kyphos. Ordinary jack app. Stands with hands supporting head. 2/25/11. J. fails to support well. Placed on frame.	Fair	4/ 1/11	Plastic	8	‡	5 mos. Supports with hands on knees	P. P. J.	Yes	Yes	*No*
3	7 D. 8/20/07	2	6	4⅔	1/7/10. Jackets have not been applied correctly. Placed on frame.	Excellent	4/27/11	Plastic	8½	17	No return of *sign or symp.*	None	Yes	....	Doubtful
4	9-10 D. 6/21/10	5	18	1	3/11. *Child stands and walks awkwardly.* To rest in bed.	Acute	6/ 8/11	Plastic	7	16	? Grunting resp.	None	Yes	Yes	Doubtful
5	12 D.—1 L. 8/13/11	2½	6	*	....	Unknown	8/ /11	Graft	5	‡	7 mos. Psoas spasm	*Frame*	*No*	Yes and abscess	No
6	Dor.—Lumb. 4/25/09	3½	18	2 7/12	10/21/11. General condition excellent. There is a considerable *recession of kyphosis.*	Excellent	11/ /11	Graft	2	¶	*No return of* sign or symp.	None	*No*	....	Yes
7	8 D. 8/20/07	3	6	4¼	No note during previous 6 m.	*Arrested*	11/16/11	Graft	..	9	No return of sign or symp.	None	Yes	....	No
8	9 D. 4/11/08	5	?	3 7/12	7/10. To be *discharged as cured.* (Attending surgeon changed.)	Arrested	12/14/11	Graft	2¼	9	No return of *sign or symp.*	None	Yes	....	No
9	8 D. 2/28/12	4	?	*	....	Unknown	3/ /12	Graft	2	‡	? Supports with hands on knees	Brace	Yes	Yes	No
10	11 D. 2/28/10	5	6	1¼	2/17/12. Kyphosis *increased since last tracing.* Spasm marked when passive motion attempted. *General condition good.*	Acute	5/25/12	Graft	2	‡	6 mos. Psoas spasm	Brace	Yes	Yes and abscess	No
11	9-10 D. 6/26/11	2	9	1 1/12	10/21/11. Local condition much improved. Kyphosis *much less prominent.*	Excellent	7/15/12	Graft	2	‡	No return of sign or symp.	None	Yes	....	Yes
12	12 D.—1 L. 7/21/10	6	24	2	12/30/11. Considerable recession of kyphosis. To obtain permission to operate.	Fair	7/19/12	Graft	1½	‡	10 wks. Stiff walk	None	Yes	Yes	Doubtful
13	Dor.—Lumb. 5/28/08	4	12	4 1/6	4/9/12. Hip very sensitive to all attempts at passive motion. *Limb held in flexion and adduction.*	Arrested	8/12/12	Graft	‖	‡	No return of sign or symp.	*Hip* traction	*No*	....	No
14	8 D 8/22/05	3 (for T. B. knee)	?	†	7/09. Discharged; wearing jacket. 2/13/10. No increase of deformity. No evidence of active disease.	Arrested	6/10/12	Graft	1½	**	No return of sign or symp.	None	No	....	No
15	12 D. 5/3/12	5	?	*	5/26/11. Readmitted. Notes concern the knee.	Unknown	4/ /12	Graft	§	5	1 mo. Awkward walk	None	No	Yes	Yes

* Operation before admission.
‖ *Bed treatment continuous.*
¶ Still under treatment (for a mastoiditis).
† Spine infection one year and four months after admission. Operation six years later.
§ Without protection since admission.
‡ Still under treatment.
** Under observation for knee.

Case 7.—The patient received four years' and three months' treatment before operation. The history during this period gives no evidence of anything but satisfactory progress. Tracings show a remarkable increase in deformity between Feb. 16, 1911, and May 25, 1911, without any explanatory note. From this history I judge that the disease was arrested at the time of the operation, and subsequent tracings show that the operation failed to prevent increase of deformity.

Case 8.—After being in the hospital for two years and three months the patient was pronounced cured and ordered discharged wearing a jacket. She was retained, however, and was operated on. There are no notes indicating a return of the disease. All that the operation could have been expected to do in this case was to do away with the necessity for any external support of the weakened spine. In this it was a failure.

Case 9.—The patient was admitted immediately after the operation. An interesting point in this case is found in the tracings. December 12, the patient was placed on a frame and a month later the tracing showed a marked recession of the deformity. She was then allowed to be up without protection for a month, and a tracing at that time, February 16, showed the deformity to have again increased. (Figs. 1 and 2.)

Case 10.—On admission: "Marked kyphos at second dorsal. Spasm of back muscles. No sign of abscess. Glands normal." History prior to operation gives no indication of abscess formation. On account of the note three months before operation, I have classed this as an acute case.

Oct. 8, 1912, five months after operation: "Wound has remained healed (there had been a stitch abscess). No evidence of active disease or lack of support. Has been up and about since eight weeks after operation."

Nov. 7, 1913: "Left psoas contraction. Tumor in left iliac region. Discharging sinus lower end of dorsal wound. Apprehension marked." (Graft 5 by ½ by ⅓. Figs 3 and 4.)

Case 11.—History notes of this case show that the improvement before operation was marked. April 16, 1913, nine months after operation and seven months after removal of apparatus: "General condition excellent. Extension of left thigh may be slightly less than right. Tracing shows deformity to be slightly increased." It might seem wiser to withhold a verdict in this case for several months.

Case 12.—Six months after admission and six months before operation: "Local condition improving rapidly. General condition excellent. Spine flexible each side of kyphos." Four months after operation: "Movement in lumbar region, below site of operation, limited. Some restriction of extension of the thighs."

Case 13.—From the history it would seem that the spine had been in excellent condition for about a year before the operation and that the hip was demanding the most attention. Nov. 7, 1912: "Spine evidently in excellent condition. Hip shows spasm in extremes of motion. Patient has been in bed continuously since operation."

Case 14.—The patient was admitted for tuberculous knee. Pott's disease was discovered one year and four months later. History points to the knee having been at all times the more serious focus. No active symptoms are recorded in connection with the Pott's disease. It can scarcely be doubted that the spinal infection was arrested at the time of the operation.

Case 15.—The patient was operated on shortly before admission. Fifteen days after operation: "Walks awkwardly. Plays about." April 15, 1913, about one year after operation: "No increase of deformity. Walks awkwardly. Slight spasm of right psoas." We have but little information about this case. Probably a final verdict should not be offered for at least another six months.

CONCLUSIONS

1. While I do not unqualifiedly condemn the operation on account of the poor results in some of these cases, I do not believe the claims which have been made for it have been substantiated (see illustration from Annual Report of Sea Breeze Hospital).

2. If alterations in technic, such as the implantation of a longer graft, and the extension of the period of postoperative use of external support, are to improve the results, then reports should be forthcoming two years after the operation and not before.

3. The danger in the use of the operation does not lie in the operation itself, but in the creation of a sense of false security, a feeling that a cure of a chronic disease has been produced, and a consequent neglect of other therapeutic measures.

2020 Broadway.

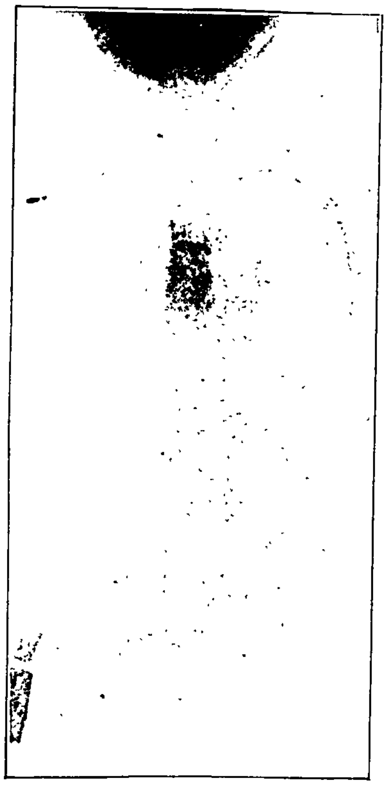


Fig. 1 (Case 9).—Roentgenogram, taken in May, 1913.

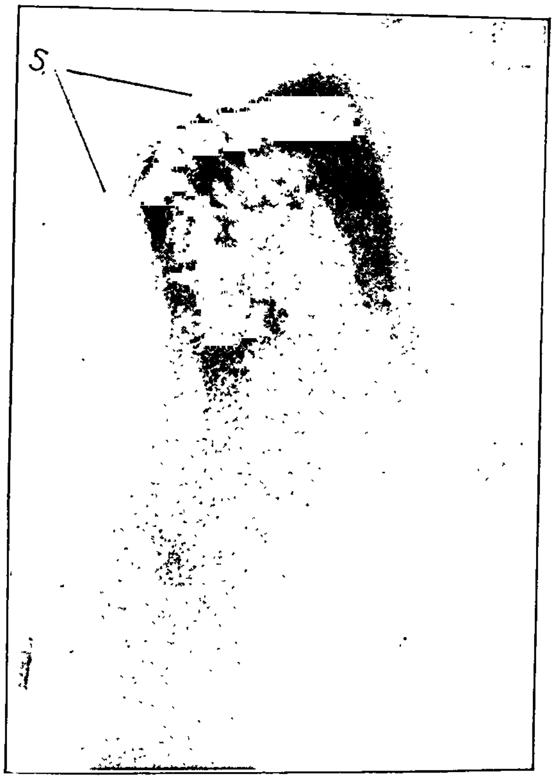
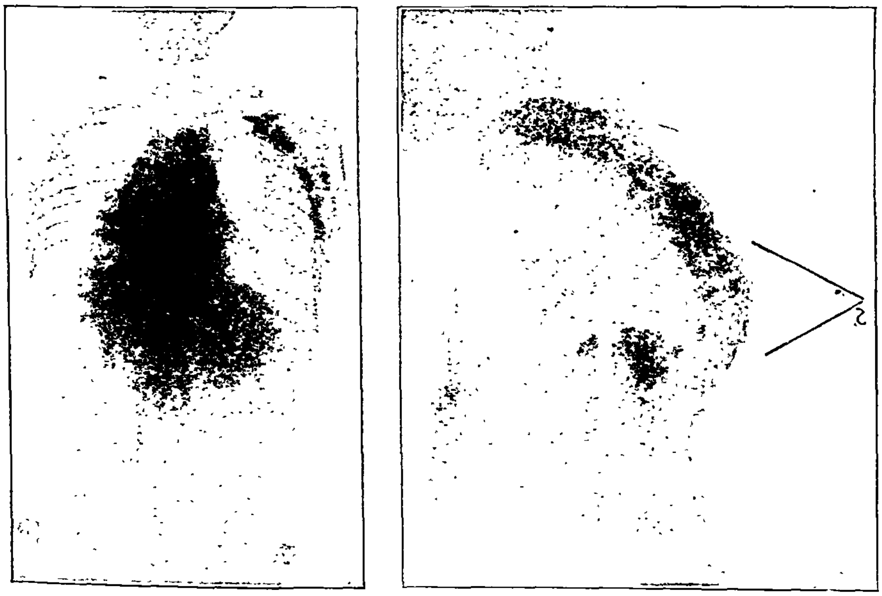


Fig. 2 (Case 9).—Roentgenogram, taken in May, 1913. Present activity of the infection, fourteen months after operation, is clearly shown in these two pictures.

ABSTRACT OF DISCUSSION

Dr. John Ridlon, Chicago: The report of Dr. Nutt is a word of caution that it is well to have spoken. We cannot expect, by any operation, or by any maneuver or any method of treatment, to cure all these patients or have them all do well. Some will do badly, whatever we do in an operative or a non-operative way; and no one should be so enthusiastic over his own method of treatment as to lead the general public or the general practitioner to believe that all patients can be rapidly cured by this one method of treatment.

Dr. Reginald H. Sayre, New York: In the various cases that are noted in Dr. Nutt's report, if you will look at the tracings, you will see that almost all had distinct improvement in position in the tracing taken immediately after operation, as compared with the tracing taken immediately before operation. Little by little, however, this curve became more pronounced until, in a good many instances, the result within a year or eighteen months after the operation was still more curve than had existed prior to the operation. In a case that I have observed, in which one of my colleagues operated in my service while I was abroad last year, no protective support has been applied. I did not put any protective support on the patient when I came back, being anxious to see what would happen. The spine of the child gradually became more and more curved, and the roentgenograms taken at intervals of from six weeks to two months showed progressive degeneration of the inflamed part of the spine; there was more loss of substance in the inflamed part of the vertebrae than was present a year ago, showing that the operation itself has not caused a change in the diseased part of the vertebrae. Disintegration has gone on, just as it would have done if the vertebrae had been left alone; although the splint has probably prevented as much curving as the child would have had if not operated on. The condition became painful, and the child was put in a wooden frame. The spine has now begun to straighten once more. I believe that while these operations are, in selected instances, wonderful advances, they will not relieve us from the necessity of protecting these vertebrae for a long period of time. I think, however, that perhaps it may be wise not to use protection in these cases for a while. Let us find out whether we change the pathologic process, so that instead of having a disease which ordinarily continues for two or three years and requires protection during this period, there is a normal condition secured by giving physiologic rest with bone-splints for six or eight weeks.



Figs. 3 and 4 (Case 10).—These two roentgenograms, taken in May, 1913, one year after operation, of a patient with no history of abscess formation previous to operation, illustrate what may result from this treatment as at present carried out.

If this is so, it is a wonderful advance, and let us know it; but, so far as my experience has gone in the case under my supervision, I do not believe that the operation does that. I think that we must continue the protection, as before.

Dr. F. J. Cotton, Boston: For fourteen months past I have been doing some work on bone-grafts with Dr. Loder, my assistant, dealing particularly with the transplanting of the condyles of the femur, and the study of the ideal process of the life and growth of the bone-transplant under the best conditions.

The conditions include absolute asepsis, a sufficient serum supply and absolute fixation. About one hundred operations were performed, on seventy-five subjects, partly cats and partly rabbits. The same process occurs in transplants as in isolated bone fragments. The bone promptly degenerates; the bone corpuscles practically all disappear. The ideal process of repair depends on the life of the osteoblasts, which promptly form a perfectly definite layer of cells next the bone, and immediately begin to lay down new bone. The dead or degenerated trabecula is immediately clothed with new osteoid tissue; the old bone is necrotic in a sense, but not in the sense that it gives rise to any irritation whatever. On the other hand, if there are not sufficient osteal cells to form new bone, the result is a destructive process, with the appearance of osteoclastic giant-cells.

I do not think that, clinically, we can say much about what is going on in a histologic sense in any given case.

You can transplant cartilage without any chance of loss, if it is clean. If you have spongy bone, with a maximum of osteal cells and transplant a minimum of relatively nonviable trabeculae, you have a transplanting of active cells on a permanent scaffolding; and whenever these osteal cells get a fair chance they clothe the trabecula in that way. On the other hand, whenever they do not get a fair chance, a prompt giant-cell erosion takes place and the cells are absorbed. The appearance of the Haversian canals and a remodeling of the bone, which takes months in the human being, occurs later. That is not a part of the union of the graft with the host bone, but a remodeling to adjust the structures to strain. It is accomplished under Wolff's law, I think; and it is not fair to call it a part of the union of the graft, either histologically or clinically.

I am treating this from the experimental side. I believe that we shall find that a graft that is good for anything clinically will be a graft of spongy bone. I am not inclined to feel that the grafts made of dense bone will be a valuable source of new bone, although they live. I have used that sort of graft in a number of cases and cannot feel that these cases did any better than if a bone knitting-needle had been used in the same way. I started with a different notion; but I have become enthusiastic about the growth of spongy bone, and not about the other. Dr. Loder and I are not yet ready to make a full report. It seems, however, that we have gone far enough to demonstrate a certain law of growth under optimum conditions.

Dr. D. B. Phemister, Chicago: The influence of infection on the transplant has been spoken of. I have noticed that its presence does not always mean a failure of the operation. If the infection is severe and quite extensive, resulting in marked exudation or suppuration, the entire transplant will die and have to come out. But if it is milder and confined to a small portion (nearly always one end of the transplant), then that part only will undergo necrosis. The effect of the infection on that portion which "takes" frequently is that its periosteum is stimulated to excessive callus formation, producing an involucrum on the transplant just as we see it in the ordinary case of osteomyelitis. In such cases, if the portion which dies is not absorbed after some weeks or months, it can be removed.

Dr. F. H. Albee, New York: Dr. Nutt is keen on drawing conclusions from history charts alone. He draws the conclusion in most of these cases that the patients were cured. He says that in one case there was scarcely any doubt that there was a cure, yet he never examined the patient before operation. He took charge of the hospital long after the operation had been performed. I think that it is wrong to draw such conclusions from history charts. Dr. Ely was there before I was and neither of us is expert on writing out histories of cases. We made short notes; but to take these and draw conclusions from them is not just. I talked over the cases with Dr. Nutt, but my word was entirely ignored as to the condition that had existed before operation.

The roentgenogram does not cover the complete area of the disease. Neither did the grafts, yet they held perfectly the vertebrae in which they were situated. The deformity did not occur in the vertebrae held by the graft, but below that point. I have had other cases that came under the the care of other men. I have had two such cases that came under the care of one other man, in which the plaster jackets were immediately put on. Fortunately they came back to me. I took off the jackets and the patients have done well ever since. I do not think that the fact of Dr. Nutt's putting jackets on the patients is a trustworthy reason for considering that the operation is not a good one.

The operation on these vertebrae is not contrary to any orthopedic law, but in accordance with all orthopedic principles. We feel certain that we can fix the vertebrae and I doubt whether having patients with Pott's disease try to flex their spines will reveal whether three or four vertebrae are fixed together or not, as I have patients with very flexible spines in whom it would be very difficult.

Dr. Sayre points out that in many cases the deformity has progressed since the operation, in some cases to where it was before operation. I think some of this deformity is due to a lack of growth of the vertebral bodies on each side of the disease process. One picture shows markedly wedge-shaped vertebrae which apparently were not involved by the process in the diseased vertebrae, producing an atrophy and lack of growth of the vertebrae, as it does in the hip. We put patients with these wedge-shaped vertebrae on a frame so that the bodies came together again. Some of the deformity is due to lack of growth in the piece each side of the kyphosis.

It would be more conclusive, of course, had we another very excellent treatment to compare with this treatment. We might take, for instance, the special case treated in the hospital Dr. Nutt now has control of, in which the patient was put on a Bradford frame, the picture having been published showing the patient as cured. He was on a frame two years, then wore a plaster jacket two years. After going without the jacket for a year he had a relapse. So far as I know he is still wearing a brace made under my direction.

Judging from results obtained from ankylosing operations at the knee and other joints I believe we shall find that bone fixation has a marked effect on tuberculous disease of the joints.

Dr. John Joseph Nutt, New York: This patient of whom Dr. Albee spoke as having had the relapse, I did not see at the time, but I did see him on several occasions this winter. He is wearing a spinal support, looks well and attends school regularly.

I had the roentgenograms taken only a few days ago. I did not lay much stress on them, because they cannot assist much in determining whether the patients relapsed or did not relapse. I am not discussing the technic of the operation.

CHARCOT JOINTS AS AN INITIAL OR EARLY SYMPTOM IN TABES DORSALIS *

HENRY LING TAYLOR, M.D.
Professor of Orthopedic Surgery, New York Post-Graduate Medical School and Hospital; Assistant Surgeon, Hospital for the Ruptured and Crippled
NEW YORK

The considerable number of cases observed by me in the last few years, in which a Charcot joint or a spontaneous fracture has called attention to an underlying tabes long before any ataxia was evident, has lent new interest to this heretofore rather unpromising class of cases. This interest has been intensified by the excellent results obtained from proper splinting and orthopedic treatment in both fractures and Charcot joints, which in many cases have enabled the patients to resume their work.

The material on which this paper is based consists of twenty-three cases of Charcot joints observed in the last few years in clinic and private practice. Of the twenty-three cases, twenty-one were in men and two in women. The ages of the patients when first seen ranged from 29 to 57. One patient was 29, eight were from 30 to 39, ten from 40 to 49 and three 50 or over; in one the age was not ascertained.

CAUSATION

Twelve patients definitely admitted luetic infection and an initial sore; four admitted gonorrhea but denied syphilis, and two denied both. In five the history of infection was not gone into. In most of the eleven cases without a syphilitic history, a positive diagnosis was extremely probable on clinical grounds, and it is my firm conviction that a luetic infection is the underlying cause in every case. It is interesting to note that in the twelve cases in which the date of the initial lesion is known, syphilis was acquired in every instance between the ages of 18 and 25. The shortest period noted between infection and a Charcot joint was seven years; more commonly it appeared from fifteen to twenty years or more after infection. The Wassermann reaction is not always positive, especially in those cases in which antisyphilitic treatment has been given. Stein's statement[1] that tabetic patients who have never been treated for syphilis always give a positive reaction, if confirmed, practically proves the syphilitic basis of all tabes.

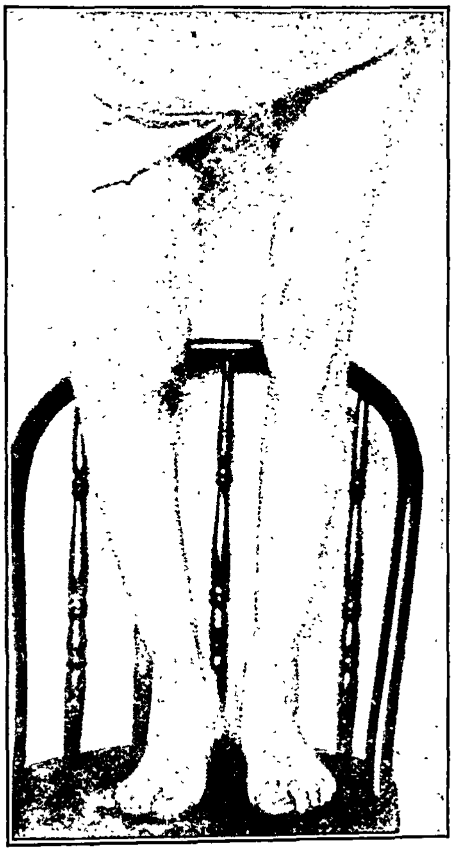


Fig. 1.—Case 5; right Charcot knee.

A number of patients attribute the beginning of their symptoms to a definite trauma, even when there is no immediate fracture or joint lesion. Many more say that an injury which proved to be a fracture was soon followed by painless or nearly painless swelling of the involved or neighboring joint. Crush fractures of the outer or inner tibial tuberosity, often spontaneous, painless and unrecognized, are a frequent cause of a Charcot knee. Doubtless the tabetic joint with effusion and bone softening precedes in many instances, resulting later in a spontaneous crush fracture after joint involvement. Seven of the cases here reported suffered practically painless spontaneous fractures before the Charcot joints appeared. These and others have already been reported[2]

---

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

[1] Stein, J. B.: Med. Rec. New York, Nov. 18, 1911.

[2] Taylor, H. L.: Med. Rec. New York, Oct. 26, 1912; Post-Graduate, November, 1912.

in detail. In the twenty-three cases here considered there were three spontaneous fractures of the shaft of the left femur high up, one of the right patella, one above the right ankle, one of the neck of the right astragalus, seven of the internal tuberosity of the tibia (four right and three left) and one of the right external tuberosity; all were followed by a Charcot of the implicated joint. Nearly all tabetic fractures heal kindly with a large callus after the usual splinting, which should, however, be somewhat longer continued than in ordinary cases.

DIAGNOSIS

Spontaneous fractures and Charcot joints often occur in patients who have noticed no previous disturbance in gait, and have considered themselves in good health. A painless fracture or large persistent joint effusion with joint looseness, but with little pain or local disturbance in adults, should always lead to examination for the symptoms of tabes dorsalis, when Westphal's sign (absent knee-jerks), pupillary symptoms, and swaying with eyes shut (Romberg's sign) will usually be found, even when there is no ataxia.

In one instance a man aged 49 slipped and ruptured the left quadriceps tendon, which was sutured and united with good function. He had had a perforating ulcer under one great toe for six months, and still had it when seen a year later. Examination showed knee-jerks absent, fixed small pupils, Romberg's sign and vesical crises. He undoubtedly had tabes, which was the underlying cause of the quadriceps rupture as well as the ulcer. There was no subsequent Charcot joint.

The commonest of the early symptoms of tabes are shooting pains in the trunk or limbs, for which the usual treatment is that for rheumatism or neuralgia, or even for local troubles. I know of a man who had difficulty in walking in the dark, who was treated two years by a leading specialist for stomach trouble and visceral ptosis, when his symptoms were due to the gastric crises of tabes. Another man, a wealthy American who had four abdominal operations for supposed stomach and intestinal conditions, without benefit, was diagnosed at a glance by Oppenheim in Vienna as having tabes dorsalis. His pains had been due to this infection. In another case a tabetic joint was diagnosed as sarcoma in a London hospital, and the leg amputated. Adults, especially men complaining of persistent shooting pains, should be examined for tabes. Bladder symptoms and ophthalmoplegia are also occasionally early symptoms of tabes.

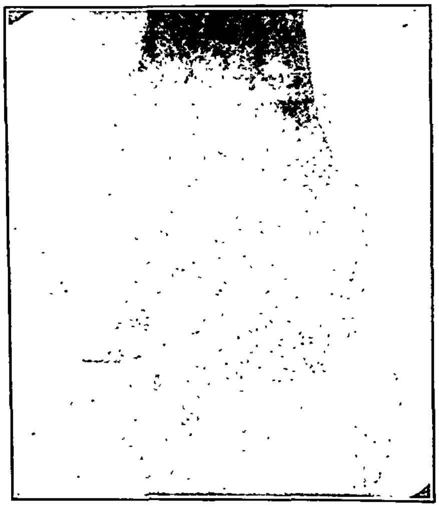


Fig. 2.—Case 5; right Charcot knee.

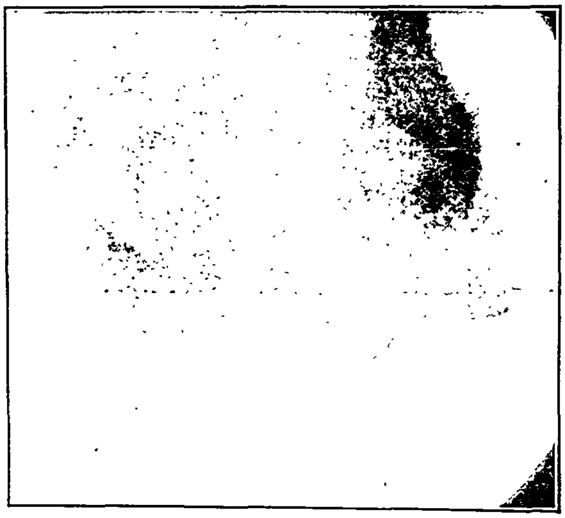


Fig. 3.—Case 9; right Charcot knee.

Examination of the affected parts by roentgenoscopy has been of great value. In the early stages many tabetic joints show little or no deviation from the normal picture. More advanced cases show roughened and fuzzy outlines and often the production of new bone about the affected parts, and some of the advanced cases, bone absorption at points of pressure, and bone atrophy. In several knee and foot cases roentgenoscopy revealed crush fractures when there had been no definite history of injury. Roentgenoscopy also revealed an ossification of the rectus muscle following a spontaneous fracture of the patella, and in several cases detached bits of bone, some of which could be palpated. In one patient with a right Charcot knee and foot, the left foot showed hypertrophy of the calcanear tubercle and apparently an os trigonum. In one of the knee cases roentgenoscopy revealed a large bone-plaque behind the knee not complained of.

In the series of twenty-three cases of Charcot joints here studied, the incidence of the trouble was as given in the following tabulation:

	Right	Left	Total
Hip	2	1	3
Knee	11	6	17
Ankle	1	2	3
Tarsus	3	1	4
Ribs	..	..	1
Spine	..	..	1
			29

This includes those cases with more than one joint affected, one each with both hips; right hip and knee; ribs, right knee, ankle and tarsus, and both tarsi. It will be seen that in this group there are no arm cases, and that the knee cases outnumber all the other joints combined. As nearly as could be ascertained the Charcot joint appeared before any ataxic gait in ten, and after ataxia was noticed in eight; in five the precedence is uncertain. Most of the preataxic patients considered themselves in good health, and noticed nothing wrong until the appearance of the Charcot joint, with or without injury. Several, however, had had spontaneous fractures long before the Charcot joint. There is usually little or no pain connected with either a spontaneous tabetic fracture or a Charcot joint.

DEFORMITY

The Charcot joint is usually a large, loose joint filled with fluid, with the increased play, deformities and displacements due to a stretched capsule and eroded articulation. In some cases the swelling goes beyond the joint up and down the leg. In the three hip cases there was total disappearance of the head, and corresponding upward displacement with elevation of the trochanter, and a flail joint with marked instability. At the knee, if the lesion is of many months' duration, there is usually abnormal lateral motion and hyperextension.

If there was a crush fracture of the internal tuberosity or bone absorption on the inner side of the knee there is an out-knee; if these changes have taken place on the outer side there will be an in-knee. Out-knee was noted five times, in-knee five times, and hyperextension seven times in the seventeen knees. In several cases the tibia was also displaced outward. At the ankle and tarsus there was usually enlargement with a tendency to valgus with or without fluctuation. In one case there was extreme tarsal valgus with great enlargement and involvement of the scaphoid, cuneiforms and base of first metatarsal. The enlargement was hard and without fluctuation (*pied tabétique* of Charcot).

In the spinal case there was a rounded lumbar kyphosis; the third and fourth lumbar vertebrae were involved. In several cases loose pieces of bone could be felt about the knee and seen in the roentgenogram. In one there was ossification of the rectus and a practically stiff knee, and in another motion was limited, owing to previous joint infection.

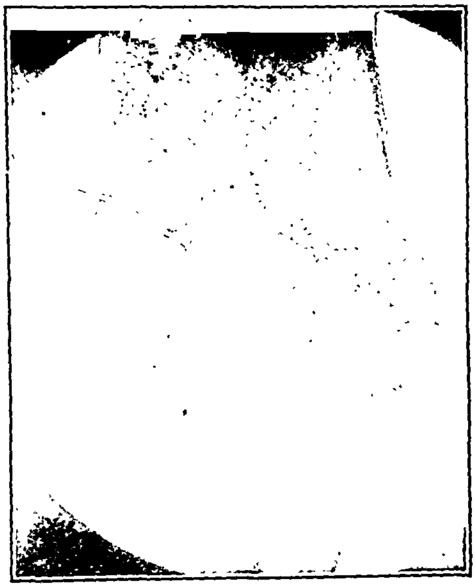


Fig. 4.—Case 10; right Charcot knee after excision.

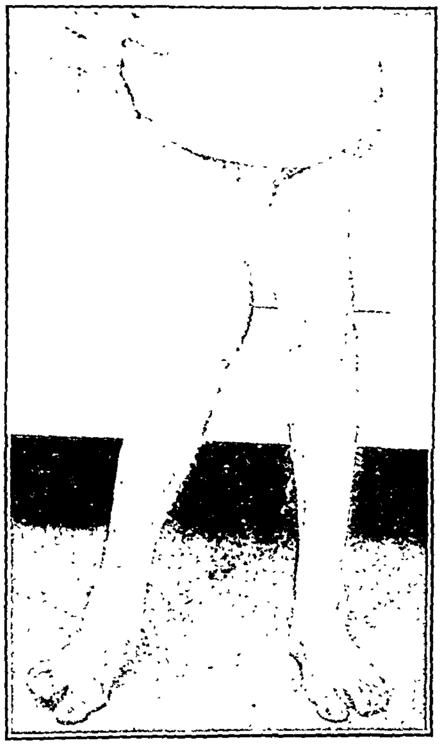


Fig. 5.—Case 13; right Charcot knee.

TREATMENT

Mixed treatment is ineffectual in tabes. Salvarsan several times repeated sometimes gives great relief, especially to the shooting pains and sometimes to other symptoms. One patient in the series had had the knee excised three years before. There was no union, and the patient could not walk without a brace. When the joint changes have not progressed too far, great improvement results from immobilization with a caliper brace (Thomas knee-brace articulating with tube in heel of shoe). The swelling gradually recedes, the joint becomes much firmer, deformity is diminished or corrected, and in a number of instances the patient has gone back to work. In very early cases, before bone destruction, a jointed knee-brace will produce the same result. A jointed brace must also be used when the patient is not able to rise from a chair or balance himself in a stiff brace. In one instance a jointed brace applied elsewhere gave no relief, but when a stiff brace was substituted improvement quickly followed. In early or medium cases, proper orthopedic treatment gives good results.

REPORT OF CASES[3]

Case 1.—*Spontaneous Fracture of Left Femur; Right and Left Charcot Hip; Tabes.*—Man, aged 39, September, 1910.

Case 2.—*Tabes; Right Charcot Knee and Hip.*—Man, aged 48, February, 1910. Has had swollen and weak knee two years. Sudden pain in the right hip two months ago. Not much pain since. Knee reflexes absent; pin-point pupils; hip and knee loose; large swelling with fluctuation. R. A.[3] 29 inches; L. A. 31½ inches; trochanter 1½ inches high. Outer condyle can be felt to be eroded at knee. No pain; marked ataxia. Roentgenogram taken in December, 1909, shows beginning absorption top of femoral head. February roentgenogram shows complete disappearance of femoral head, and crushing down of external tibial tuberosity.

Case 3.—*Spontaneous Fracture Left Femur; Right Charcot Knee (Infected); Tabes.*—Man, aged 29, March, 1911.

Case 4.—*Tabes; Left Charcot Knee.*—Man, aged 49, April, 1913. Severe fall nine years ago; no trouble before. Since then trouble in walking; shooting pains in limbs and back until one year ago. Fell off engine, February, 1912. After that knee swelled, and he has not been able to work. One injection of salvarsan, May, 1912; no improvement. Pin-point pupils, absent knee-jerks, marked ataxia. Has large painless left knee, with in-knee, and loose body near patella. There is hyperextension at both knees. A stiff brace was made for the left knee, and the swelling disappeared in about a month. Roentgenograms showed bone changes about left knee and some loose pieces of bone. The patient is reported to have died the last of May, after a two weeks' illness.

Case 5.—*Tabes; Crush Internal Tibial Tuberosity; Right Charcot Knee.*—Man, aged 36, November, 1912. A fall on the ice in December, 1911, was followed by swelling of knee, which has persisted. Has a moderate out-knee (Fig. 1), but very little pain. Has ataxia, Romberg's sign, absent knee-reflexes and sluggish pupils. Has swelling lateral motion at knee, displacement of tibia outward, and some crepitus; flexion stopped short of a right angle; walks without support. Looks quite thin and miserable, but works as night clerk. Stiff brace (caliper) applied. After several months his knee was much improved. Roentgenogram (Fig. 2) shows irregular bone at sides of joint and a loose piece at inner side.

Case 6.—*Tabes; Right Charcot Knee.*—Man, aged 35, October, 1909. Ataxia in walking six months, swelling of knee a few weeks. Has ataxia; absent knee-jerks, pupillary symptoms, and large loose knee. The roentgenogram showed no great changes. After jointed brace had been worn for lateral support for four months, the swelling entirely disappeared, and the knee seemed to be practically restored to normal.

Case 7.—*Tabes; Left Charcot Knee.*—Woman, aged 44, May, 1912. Has had shooting pains in legs sixteen years or more, and incontinence of urine (dribbling) three or four years. Knee began to swell four months ago; was very large, not very painful; slight ataxia and Romberg's sign were present; knee-jerks absent; pin-point pupils; knee improved after application of a stiff brace. Roentgenogram shows fuzziness, lipping and overgrowth, outer side joint and under patella. Tibia is displaced outward.

Case 8.—*Spontaneous Fracture Left Femur (Twice); Right Charcot Knee; Tabes.*—Man, aged 50, November, 1910.

Case 9.—*Tabes; Right Charcot Knee.*—Man, aged 48, March, 1913. Pains in legs twenty years, and difficulty in walking

---

3. Cases 1, 3, 4, 11, 14 and 22 have already been reported under the title "Spontaneous Fracture as an Initial or Early Symptom of Tabes Dorsalis" in the New York State Journal of Medicine, October, 1912, and the *Post-Graduate*, November, 1912, where full histories may be found.

3. R. A. is the distance from the anterior superior iliac spine to the tip of the internal malleolus on the right side; the same distance on left side.

three years; right knee was swollen three years; now marked ataxia; fixed small pupils; absent knee-jerks; slight Romberg; in-knee, hyperextension, and lateral mobility at knee. Right knee 18½; left knee 15; knee not painful. Has worn jointed brace two years without benefit; knee now improving under stiff brace. Roentgenograms show extensive bone changes about condyles, crush of external tibial condyle and several loose fragments of bone. (Fig. 3.)

CASE 10.—*Tabes; Right Charcot Knee Excision; Non-Union.*—Man, aged 48, November, 1912. States that he injured right knee crawling under locomotive four years ago. After this knee swelled and patient had trouble in walking; knee was not painful. Three years ago knee was excised, but bones did not unite. Since then he has had shooting pains in legs and has worn a stiff brace. Patient now has ataxic gait, Argyll Robertson pupils and absent knee-jerks. Knee may be hyperextended to 190 and flexed to 70. There is little swelling and no fluid. (Fig. 4.)

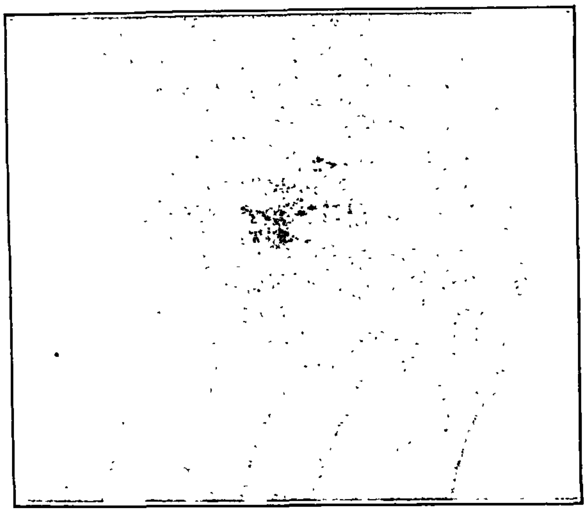


Fig. 6.—Case 21; right and left Charcot tarsus.

CASE 11.—*Spontaneous Fracture Left Internal Tuberosity of Tibia; Tabes.*—Man, aged 42, September, 1910.

CASE 12.—*Spontaneous Fracture Right Patella; Myositis Ossificans of Rectus Cruris; Tabes.*—Man, aged 37, July, 1909.

CASE 13.—*Right Charcot Knee; Tabes.*—Man, aged 38, May, 1908. Incontinence of urine at night for many years. Painless swelling in right knee began two years ago; no trouble with walking till last six months. Now little ataxia; Argyll Robertson pupils; absent knee-jerks; delayed sensation; no shooting pains; in-knee and swelling (Fig. 5).

CASE 14.—*Tabes; Fracture Left Humerus; Spontaneous Fracture Left Tibial Tuberosities.*—Man, aged 46, May, 1912.

CASE 15.—*Tabes; Right Charcot Knee.*—Woman, aged 44, April, 1910. Knee greatly enlarged over a year, painless; ataxia and other tabetic symptoms. Roentgenogram shows crush and displacement of internal tibial tuberosity.

CASE 16.—*Tabes; Right Charcot Knee.*—Man, aged 35, October, 1909. Ataxic gait six months; painless swelling in knee two months; some hyperextension. Has absent knee-jerks, pupillary symptoms and shooting pains. Roentgenogram shows no gross bone changes. Jointed knee-brace, with stop to prevent hyperextension applied. Swelling entirely disappeared in four months.

CASE 17.—*Left Charcot Knee; Tabes.*—Man, aged 34, May, 1912. No injury; no ataxic gait. Knee began to swell seven months ago: slight pain in beginning, none now. Knee-jerks absent; slight Romberg; Argyll Robertson pupils; no ataxia in arms or legs; no lightning pains. Large, loose knee, with effusion.

CASE 18.—*Charcot Ribs; Right Charcot Ankle, Tarsus, and Knee; Tabes. Improvement after three injections of salvarsan.* Man, aged 50, October, 1912. Bladder symptoms (dribbling), girdle pains and shooting pains in legs appeared about ten years ago, also localized swellings on ribs, appearing from time to time and lasting from four to eight weeks. One is present now on right side and one has just gone on left. Right knee began to swell three years ago, and right ankle six years ago. Did not have much trouble with gait until knee began to swell. Girdle pains disappeared six years ago. Fixed pin-point pupils; absent knee-jerks; Romberg and marked ataxia. After three injections of salvarsan two years ago, ulcer which had been present on ball of small toe six years healed in one week and has not recurred; has had no pains in legs or dribbling since; general health and gait improved, and swelling of knee diminished. Weakness in right knee and ankle have progressed and for the last three months has been able to walk only with the aid of crutches. Roentgenoscopy reveals some hyperostosis under patella and back of joint; disintegration at right astragaloscaphoid; also hypertrophy of left calcanear tubercle and left os trigonum.

CASE 19.—*Fracture Above Ankle; Charcot Ankle; Tabes.*—Man, aged 43, February, 1909. Fracture above left ankle nearly three years ago; two years ago ankle began to swell with some pain. Absent knee-jerks; Argyll Robertson pupils; no ataxia; walks well with eyes shut; has cystitis. Much bony enlargement about ankle; moderate pain in walking; good ankle motion.

CASE 20.—*Left Charcot Ankle; Tabes.*—Man, aged 33, March, 1911. Treated four years ago for gastric pains; knee-jerks absent; right pupil fixed and dilated, left sluggish; slight Romberg; moderate ataxia of gait, slight of arms. Left ankle enlarged.

CASE 21.—*Right and Left Charcot Tarsus (Pied Tabétique.)*—Man, aged 57, December, 1912. Both feet in marked tarsal valgus, with much firm enlargement of scaphocuneiform region; no pain; no fluctuation. Typical symptoms of tabes, but ataxia absent (Fig. 6).

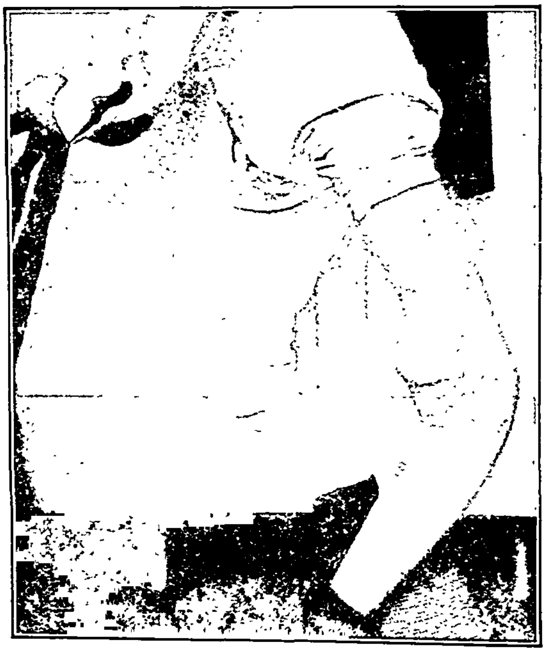


Fig. 7.—Left Charcot knee extreme hyperextension; no history.

CASE 22.—*Spontaneous Fracture of Right Astragalus; Charcot Astragaloscaphoid Joint; Tabes.*—Man, aged 30, February, 1912.

CASE 23.—*Charcot Spine; Tabes.*—Man, aged 47, March, 1913. Fell 6 feet, May, 1910. Next day was unable to walk, but could walk with difficulty five days later. Pain in lower back and about left thigh since. Has had many kinds of treatment since, but has grown steadily worse. Now walks and stands with difficulty; marked kyphosis in lumbar region; no ataxia; no Romberg: sluggish left [illegible] right [illegible] jerk absent, left present; antilue [illegible]

Wassermann negative. As the patient was growing steadily worse, a bone grafting was advised, and a transplant from the tibia was implanted into the three lower lumbar vertebrae and sacrum. The patient grew steadily worse and died six days later. Roentenogram showed left half of body of third lumbar and right half of fourth nearly destroyed; considerable displacement of third vertebrae to right.

CONCLUSIONS

One seems warranted in concluding from this series of cases that:

1. Charcot joints and spontaneous fractures are often initial or early symptoms of tabes dorsalis.
2. They often precede the ataxic gait, and are of diagnostic importance in calling attention to the underlying tabes.
3. Charcot joints are frequently of traumatic origin and often follow fractures, and lesser injuries.
4. The results of orthopedic treatment in early or moderately advanced cases of Charcot joint are extremely satisfactory.
5. Orthopedic treatment by protective splinting should also be used in the loose joints of tabes due to hypotonus before the appearance of swelling and effusion.
6. As ataxia is frequently one of the later symptoms to appear, the term "locomotor ataxia" to designate the affection is misleading and should be discarded. "Tabes dorsalis" should be used in its stead.

I wish to thank my colleagues at the Post-Graduate Hospital and the Hospital for the Ruptured and Crippled for their kindness in referring cases and valuable aid in their study.

128 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. J. D. Griffith, Kansas City, Mo.: I had a case of Charcot's disease of the hip-joint in which there was complete absorption of the neck itself. The patient was a Chinaman, 67 years old, with a decidedly luetic history. He had never had a bad symptom or any great difficulty in getting around until he had an accident in May, 1913. He was walking with a cane and suddenly found, without any premonitory symptoms, that the leg gave way in stepping down the stairs. The patient had no pain, but the leg was greatly swollen and edematous. The roentgenogram showed that the head of the femur was practically destroyed, only a small piece being left in the acetabulum. When the man came to the hospital, there was an effusion about the joint, as well as quite a formation of new tissue, with a shortening of the leg of about 2 inches. One peculiarity about the case was that there was no loss in the power of lifting the leg and placing it in different positions, and the ordinary tests for fracture were negative. There was nothing to indicate that there was a complete absorption of the neck of the femur. We kept him in bed for a few days and had an ordinary Thomas hip-splint made for him—one with a fixed shoe; we adjusted that after he had recovered sufficiently. He is walking around on crutches now.

A second case is that of a man who is stout, strong and able-bodied, with a negative history. He had had no trouble, except that he was noticeably commencing to walk with one hip rather prominent, and was going slightly sideways. He weighed over 150 pounds. He had no pain, but thought that he had hip-joint trouble. The roentgenogram showed nothing the matter with the joint, but a little trouble higher up in the spine. There was no evidence of pain on examination and not a single spinal symptom. He gave no history of lues.

Dr. F. J. Cotton, Boston: I should like to agree with all that Dr. Taylor has said. I see a great many of these cases under different circumstances in a general surgical clinic, and they are usually those that my colleagues let go by. They are not the bad instances of Charcot joints, and have previously been treated with more or less Christian Science methods. They are unrecognized cases. I am familiar with the kind of cases that Dr. Taylor mentioned, but I should like to mention the subclass—cases that are generally unrecognized. They are types of low tabes. You do not get the Argyll Robertson pupil in them, but slightly sluggish light-reflexes and absent knee-jerks occur almost always. It is these "low" cases in which we often have for many years serious bladder trouble without any ataxia and without any development of other symptoms. All the cases of this kind that I have seen have existed for many years; not one has been ataxic or shown a clean-cut picture of tabes dorsalis. The patients come in for unexplained joint injuries that are supposed to be traumatic. They are sometimes recognized after the failure of some method of treatment.

You really have a clean-cut picture. There is a painless joint, more or less thickened, without effusion, with no joint spasm, with abnormal mobility. Sometimes there is the lancinating pain of tabes; sometimes this is absent.

Sometimes there is an appearance of erosion of the cartilage, a smudged picture of the bone outlines and a characteristic exhibition of formless bony matter in the articular capsule.

If you cut into these joints, you find a pathologic picture of a thickened capsule with bone-plaques scattered around. All Dr. Taylor's cases, except the one in which osteotomy was done, showed this type. I have felt no hesitation in making the diagnosis, and then sending the patients to the neurologist for confirmation. Sometimes the nerve specialists said that there was no tabes; but when I insisted that there was, they finally made the diagnosis. These conditions occur more frequently in women than in men, and with no definite syphilitic history; but, as we believe, with syphilis lying back of it.

The cases are important because the orthopedic surgeon can do something good by means of apparatus, although other things do not do the slightest good. The patients often come to the hospital for operation.

Dr. Gilbert Bailey, Oak Park, Ill.: I wish to emphasize the painless character of many of these joints. I recall the case of a man, a carpenter, who was admitted to the Cook County Hospital. He had been doing some work on a door and, while attempting to drive a nail through the door, drove it into his shin. It took the force of two men to pull him away. Before the accident he had considered himself perfectly well. Three months later he began to notice a swelling at the site of the injury and he sustained a spontaneous fracture. Several months later a Charcot joint developed at the ankle. The fact that the Charcot joint developed without the usual tabetic pains, and after the trophic disturbance seemed interesting.

Dr. John Ridlon, Chicago: I have seen three cases in which the first diagnosis of tabes was the joint condition as shown by the roentgenogram. Its existence was not suspected until then. Therefore, in all obscure joint cases in which the diagnosis is not clear, a tabetic joint must be seriously considered. Another point that must be remembered is that tabetic joints must not be operated on. The patient is positively harmed by operation.

Dr. Henry Ling Taylor, New York: This discussion emphasizes some points that I should have emphasized more in my paper. My experience agrees with that of Dr. Cotton; nearly all these cases are diagnosed for the first time in an orthopedic clinic or in the private office of an orthopedic surgeon. This series of cases also includes a great many cases of tabes in which some of the classical symptoms are absent. I refer all doubtful cases to a neurologist for detailed study.

Legal Decisions in Medical and Surgical Cases.—There are some things which it is not wisdom to attempt, and an explanation of the way in which decisions are arrived at in courts of justice where medical and surgical matters are concerned is one of them.—C. Mansell Moullin, in (London) *Clinical Journal.*

THE RECOGNITION OF EARLY CHANGES IN THE LARYNX IN TUBERCULOSIS *

W. E. CASSELBERRY, M.D.
Professor-Emeritus of Laryngology and Rhinology in Northwestern University Medical School; Laryngologist to St. Luke's Hospital
CHICAGO

Not differing from tuberculosis elsewhere, the first definite change provoked by the bacillus in the larynx is an infiltration of the mucosa and submucosa by a diffusion of small, round, mononuclear cells, interspersed among which are collections of epithelioid and lymphoid cells in the form of tubercles, which are deposited, in large part, in the connective tissue beneath the epithelial and structureless layers, and hence near enough to the surface to change its aspect in form and feature. Accordingly, the recognition of early changes in tuberculosis of the larynx will be promoted by keeping in mind:

First, the disposition of tubercles and tuberculous nodules to assume a globular form, which gives the surface of the infiltration, also termed hyperplasia, a mammillated aspect.

Secondly, their disposition to excite verrucous and granulomatous formations which, though ordinarily delayed till the stage of ulceration, may make an earlier appearance and give the surface a papillomatous aspect.

Thirdly, their disposition to excite serous exudation which may give the surface, not the proportions of gross edema familiar at a later stage as "turban-shaped" and "pyriform," but an aspect of incipient edema which, by a touch of pallid color and somewhat tense consistency, imparts just the "atmosphere" necessary to lend distinction to the composition.

Moreover, although by no means exclusive, tuberculosis favors certain sites in the larynx, each of which tends to stamp the lesion, whether mammillated hyperplasia, verrucous formation or incipient edema, with its own local functional or anatomical mark and, though the stamp be that of location rather than of lesion, its impress on a tuberculous matrix is apt to leave a mark distinctive of the lesion itself. Especially is this true at a site which, lacking a definite name, is herein designated, together with a description of its location and function, as the vocal angle (Fig. 1).

Though a feature of the larynx, the vocal angle is not a separate anatomical part, but a line of junction of several parts, the terminals of which converge at an angle. In length, the angle starts at the base of the vocal process as represented by a small three-cornered area beneath the terminal ridge of the cord, and, mounting with a posterolateral trend, it marks the line at which the superficial structures of the true cord, the false cord and the interarytenoid fold merge into one. The function of the vocal angle is somewhat like that of a hinge, its overlying mucosa folding in and out with every movement to and fro of the vocal cord in speaking, and, though under normal conditions it withstands unharmed this perpetual creasing, a tuberculous infiltration will cause it to retain, in the form of a furrow or fissure, the impress made on it at the folding line.

The mammillated hyperplasia fundamental to the furrow is prone to make its first appearance and the furrow to take its start at the lower extremity of the vocal angle in or near the small three-cornered whitish surface of the base of the vocal process. Although this is a point of greatest significance in the early recognition of tuberculous changes in the larynx, it is doubtless often overlooked because it lies beneath the ridge of the cord near its terminus and does not flash into full view in the mirror until the moment of deep inspiration with widely separated cords which naturally follows a prolonged vowel sound. In the half-opened position of the cords, during ordinary breathing, it is only partly visible, and in the closed position not at all visible. The infiltration, however, is rarely limited to this one spot and may make its first appearance anywhere along the vocal angle. Also, instead of at the base, it may first be perceived clustered around the apex of the vocal process, that salient point in the edge of the cord often erroneously referred to as if it were the whole vocal process, although in fact only its apex. The furrow, in the beginning, is simply the folding line or corner of the angle, given depth by thickening of its borders; but, as the infiltration augments, especially near the terminus of the false cord, the furrow becomes more pronounced and sooner or later it becomes a fissure, perhaps exciting granulomatous formation as it cuts into the rim of the larynx at the arytenoid.

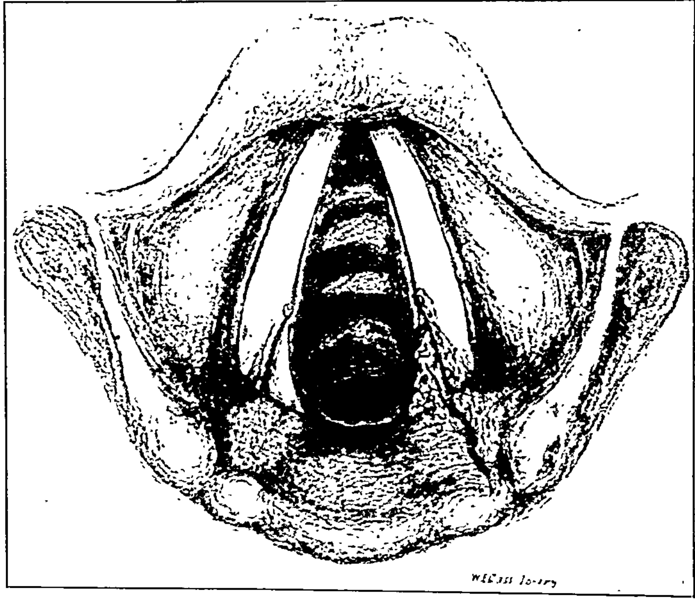


Fig. 1.—Mammillated tuberculous hyperplasia with a furrow at the vocal angle, which is one of the earliest and most distinctive of the initial lesions.

I consider, therefore, that hyperplasia of a mammillated or other typical aspect commencing at or near the subglottic portion of the base of the vocal process, and marked gradually by a furrow in the vocal angle, is not only one of the earliest, but also the most distinctive of all the initial changes wrought by tuberculosis in the larynx (Fig. 2). So soon may it appear that, in a semiquiescent state, either alone or following interarytenoid hyperplasia, it may precede by months or years any more active developments; for it is now realized that, like its parent lesion in the lung, a tuberculous infiltration in the larynx may remain indefinitely in what is the equivalent of an early stage of development, perhaps in the end to flare up or perhaps, as I have elsewhere shown,[1] to recede, in the proportion, considering all types, of 20 per cent. So distinctive is it that, by way of comparison, it may be said to indicate tuberculosis at a period before interarytenoid hyper-

---

* Read before the American Climatological Association at the Congress of American Physicians and Surgeons, May 8, 1913.

[1] Casselberry, W. E.: The Journal A. M. A., Aug. 7, 1909, p. 436.

plasia, if alone, will have passed the stage of similarity to non-tuberculous infiltrations. Even the broad-based, centrally cleft interarytenoid hyperplasia, long regarded as characteristic of tuberculosis, before reaching its typical development, must pass through indistinguishable stages; for simple inflammatory hyperplasia having a crinkled, rugous and moderately elevated aspect, indistinguishable when limited to the interarytenoid fold from the early tuberculous type, is not uncommon especially in connection with nasal accessory-sinus suppuration, retention tonsillitis, asthmatic bronchitis, tobacco pharyngitis, etc., and pulmonary patients, no less than others, are liable to these affections. Therefore, not even in the presence of pulmonary turberculosis itself will a moderate degree of interarytenoid hyperplasia, unsupported by infiltration at any other site, advance the diagnosis beyond the question whether it is tuberculous laryngitis or simple laryngitis in a tuberculous subject, excepting that any persistent hyperplasia in the larynx which supervenes in rapidly progressive pulmonary tuberculosis of the non-resistant type obviously requires no additional confirmation of its tuberculous nature.

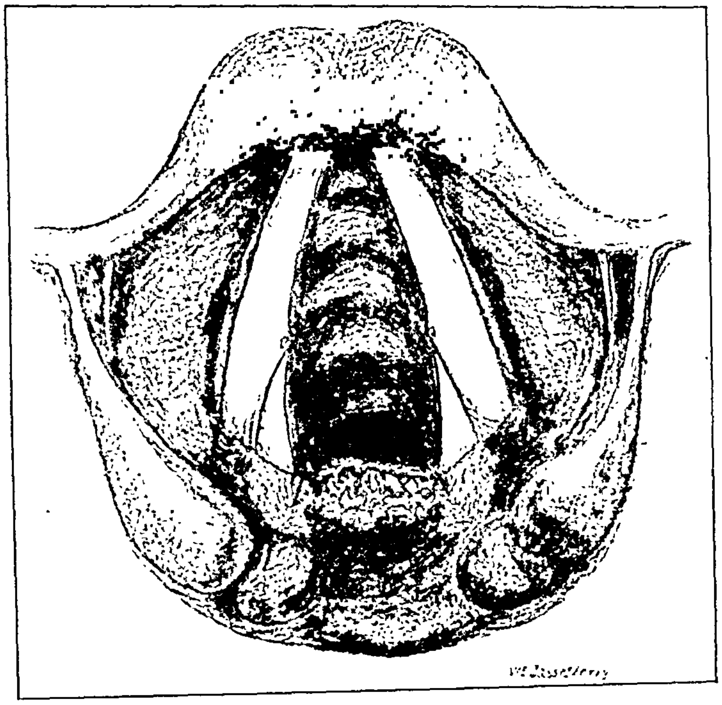


Fig. 2.—Interarytenoid hyperplasia which, existing alone, is of little diagnostic significance at an early stage as it is commonly simulated by non-tuberculous hyperplasia in the same situation.

It follows that, in the problem of distinguishing between tuberculous laryngitis and simple laryngitis in a tuberculous subject, most of the cases concerned are of hopefully resistant type, usually evidenced, despite a definite deposit in the lungs, by a fair state of nutrition, moderate pulse-rate and but few bacilli, the interarytenoid hyperplasia in question being of moderate and slow development. St. Clair Thompson refers to this type of case as lupoid tuberculosis, but it is quite different, eventually running the course of laryngopulmonary tuberculosis and not that of lupus. The prognosis, however, is hopeful and the actual results justify every effort at any sacrifice to invoke the methods most likely to secure its arrest; so that any loss of opportunity through lack of early recognition of that which later on is liable to become the major life-threatening factor in the case does an irreparable injustice to the sufferer. At the same time, any pronouncement of tuberculous laryngitis, based in error on a non-tuberculous interarytenoid hyperplasia, is liable to work a corresponding injustice to him who, though a tuberculous subject, has but a simple chronic laryngitis; for the sacrifice of life's ambitions and business interests likely to be involved in the treatment and mode of life under the idea of laryngeal tuberculosis is far greater than in pulmonary tuberculosis alone. As a single instance, the item of rest may be mentioned, which should include not only rest for body and mind, but also rest for the voice and rest from the exactions of business. If, however, an infiltration at the vocal process with a furrow in the vocal angle be recognized in addition to the questionable interarytenoid hyperplasia, the problem is then safely solved, the answer being laryngopulmonary tuberculosis (Fig. 3).

It is somewhat later that the sign at the vocal angle reaches its most characteristic bilateral development, when, together with interarytenoid hyperplasia, it gives to the semicircular form of the posterior commissure a square or box-like effect, a veritable "squaring" of the semicircle. It forms a striking picture (Fig. 4) believed to be sufficiently characteristic of tuberculosis of the larynx to justify a tentative diagnosis even in the supposed absence of pulmonary disease which, on thorough search, will then be brought to light. That the prognosis still is hopeful is illustrated, first, in Figure 4, drawn in 1901 from the case of J. W. D. in which the mammillated hyperplasia of the interarytenoid fold and of both vocal angles with a furrow at the right and a fissure at the left and with granulomas forming about the fissure were absolutely characteristic of tuberculosis; and next, in Figure 5, drawn seven years afterward from the same case, which shows that full recovery has ensued with respect to the larynx, a smooth scar, the result, in part, of intralaryngeal surgical treatment, being the only reminder of its former condition.

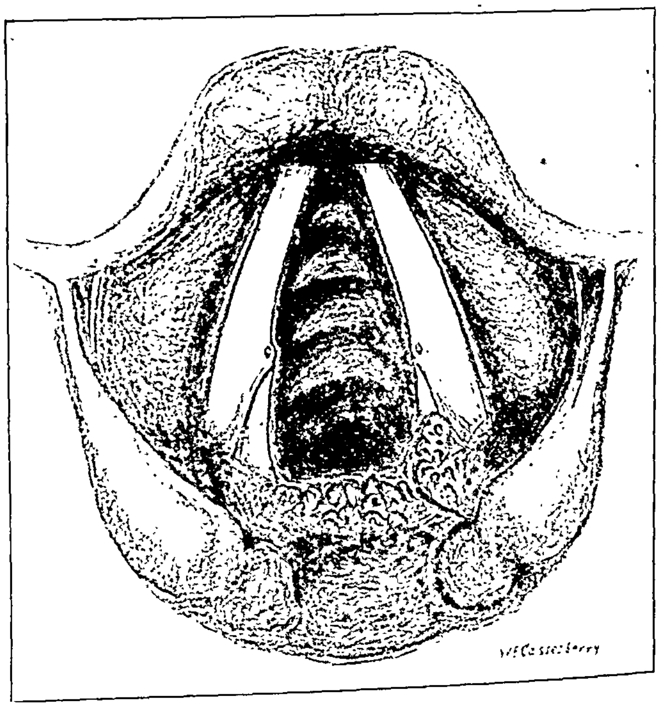


Fig. 3.—Interarytenoid tuberculous hyperplasia which is given diagnostic significance by the accompanying hyperplasia and furrow at the vocal angle.

It is not to be inferred that the sign at the vocal angle has heretofore escaped observation, for, although no mention is made of a furrow or fissure, it is discernible in various illustrations, including Nos. 3, 9 and 12 in the series of realistic sketches by C. L. Minor,[2] who also describes as "very suggestive the early appearance of thickening at the posterior insertion of the cord and a small white triangular ulcer" which he locates at evidently the same spot herein described as a three-cornered surface at the lower extremity of the vocal angle beneath the terminus of the cordal ridge.

The initial lesions at other sites, although not of frequent occurrence individually, are too numerous in the aggregate, to permit of more than passing notice limited to those which may serve incidentally to accentuate the "motif" running through the theme; so that the diagnosis of the earliest definite infiltration will be promoted, while the pathologic trend is kept in mind, by an ability to recognize it—whether mammillated hyperplasia, verrucous formation or incipient edema—in the guise of the varying stamp placed on it at different local sites. Take, for instance, lesions in the fibrous portion of the vocal cord whose firm tissue-bundles by affording an extra lateral resistance encourage the "fusiform" style of development most characteristic of hyperplasia of the cord; the fusiform, then, if abbreviated and in multiple, becomes an "undulating or wave-like" infiltration of the cord; if it is elongated and in duplicate, it constitutes a type of "double cord." Again, verrucous formations and nodules in pairs, like simple warts and singers' nodes, seem to be led into these forms of development by vocal attrition of the cords.

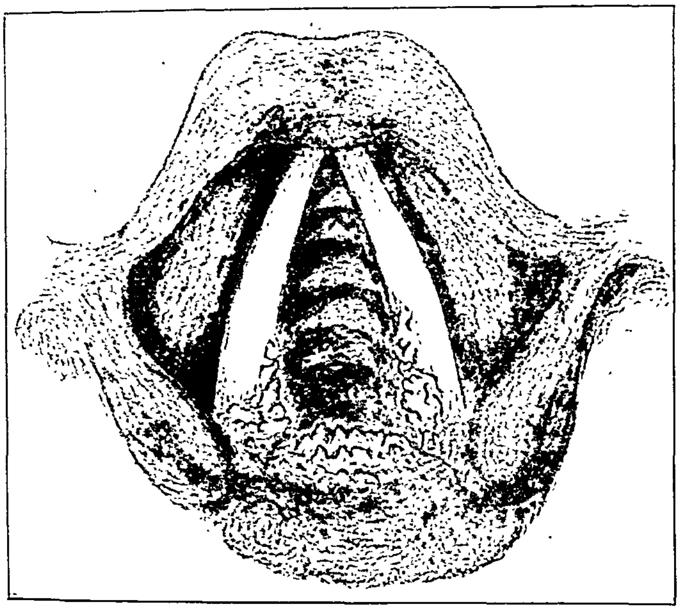


Fig. 4.—"Squaring of the semicircle" in the Case of J. W. D. The mammillated hyperplasia of the interarytenoid fold and both vocal angles with a fissure and granulomas at the right and a furrow at the left present an aspect absolutely characteristic of tuberculosis of the larynx. Recovery, however, ensued as seen in Figure 5.

The epiglottis, although rarely the first feature to manifest infection, provides the most favorable condition for exhibition to the naked eye of individual tubercles which, of course, represent, in diminutive, the elements of mammillated hyperplasia. Half of the epiglottis, in a case now in mind, was marked by many grayish-yellow, pin-point, slightly raised granules scattered beneath a translucent, somewhat edematous surface. I should not omit to mention, in connection with the mention of this unpromising initial condition, that the patient made an excellent recovery with respect to the larynx and experienced a practical arrest of the condition with respect to the lungs, and now, fourteen years afterward, is in an efficient state of health.

The arytenoid in exceptional cases may provide the first indication of a laryngeal complication by suddenly becoming edematous. This condition, when pronounced, is an evil omen indicative of the non-resistant type of the disease and characterized with respect to the laryngeal involvement by speedy development, persistent progress and rapidly fatal termination. This is the type previously mentioned as obviously requiring no additional confirmation of the tuberculous nature of any infiltration which might occur in the larynx. Having stated in connection with its opposite, the hopeful variety, that the results of treatment justify any sacrifice, it is incumbent now to state that this non-resistant type should be carefully differentiated, no serious sacrifice being justified by the results of treatment; instead, these patients should be guarded from the privation and distress which surely follow in the wake of an indiscriminate exposure to the elements and to the hardships of travel in distant climes. Any attempt, likewise, at local surgery is but to court opprobrium and invite disaster, whereas, in the hopefully resistant type, with lesions not too diffused and reasonably accessible, intralaryngeal surgical measures have proved helpful in mitigating suffering, prolonging life and promoting arrest.

Can a diagnosis then always be made from the laryngeal image alone? No, not always; for the infiltration may not have developed sufficiently, and it cannot be said that even a furrow at the vocal angle may not in rare instance be simulated by the hyperplasia of syphilis, pachydermia, etc., so that every additional test must be applied in order to remove doubt or to make assurance doubly sure. Even then it must rest on the laryngeal image to disclose that accentuation of the infiltration which constitutes a positive local reaction from a systemic tuberculin test which, following the exclusion of syphilis by the Wassermann test, should dispel any remaining doubt.

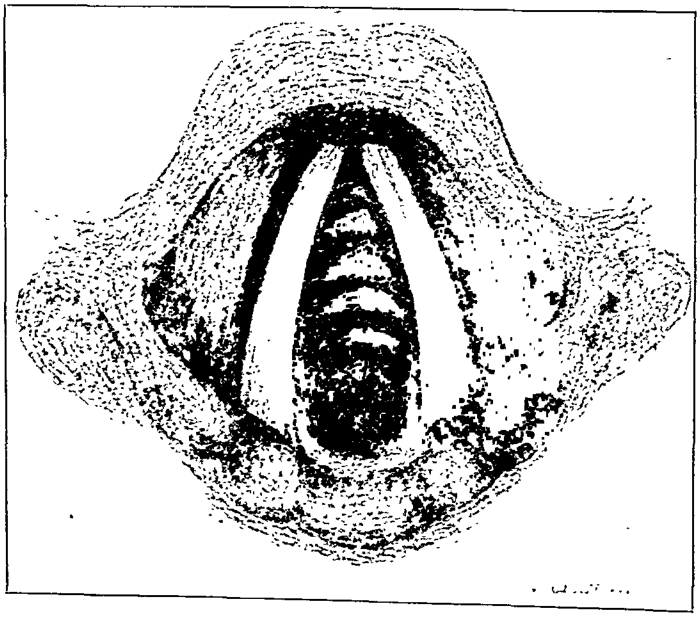


Fig. 5.—Case of J. W. D., seven years afterward, showing the larynx fully recovered from tuberculosis, with only a smooth scar the result of treatment, in part, by surgical measures.

15 East Washington Street.

---

[2] Minor, C. L.: The Diagnosis and Treatment of the Earlier Changes in the Larynx in Pulmonary Tuberculosis, The Journal A. M. A., Nov. 19, 1910, p. 1806.

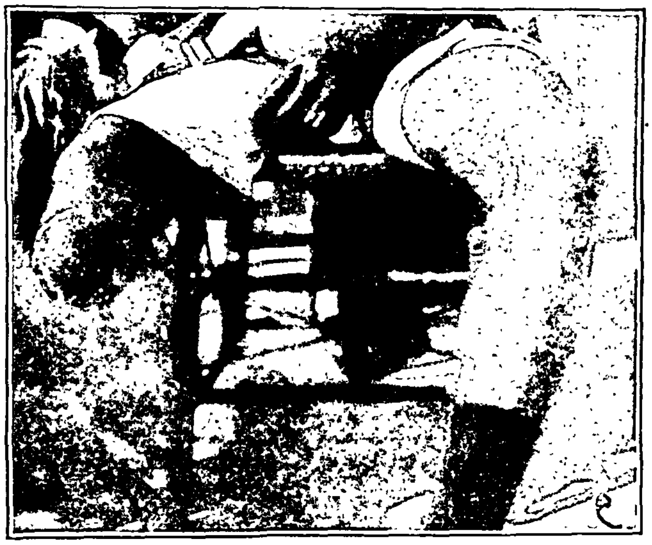
AUTOPLASTIC OPERATIONS TO COVER STUMP SUBSEQUENT TO AMPUTATION OF LEG OR THIGH

C. E. PHILLIPS, A.B., M.D.
Chief of Surgical Clinic, Colon Hospital
CRISTOBAL, C. Z.

Probably every surgeon who has done much accident work has occasionally sacrificed a useful leg stump, a knee or vital length of thigh—vital as far as function goes—because of insufficient tissue available for flaps, or has had to reamputate a leg or thigh to secure a proper covering for the bone, and, by the additional shortening, has seriously impaired the subsequent usefulness of the stump.

By bearing in mind always the fact that in the opposite leg or thigh we have a surplus of tissue which may be borrowed in case of need to fill almost any deficiency, we shall be following a policy of conservation of human tissue which will minimize the disabilities arising from accident or disease affecting the lower extremities.

For instance, in traumatic amputation in the upper third of the leg where, in order to perform a satisfactory amputation, the knee-joint must be sacrificed, we shall simply clean and trim off the lacerated tissue and as much of the bone as can be spared without interfering with function, dress the wound and allow it to granulate. When the end presents a clean granulating appearance, we borrow enough tissue from the opposite thigh or leg to supply the defect, and the patient retains a functionating knee-joint and all the benefits to be derived from it in wearing an artificial leg.


Transplant in Case 1, and area on the left thigh from which it was taken.

The same procedure may be followed in amputations of the thigh when in traumatic cases we are able to preserve a functional length of stump by trimming off the lacerated tissue, sawing the bone off flush with the end of the stump, and, at a later date, borrowing a mass of tissue from the opposite thigh to cover the end of the stump.

Likewise in cases in which a reamputation would usually be performed for tender or thinly-covered bone, the tender or attenuated skin may be cut away and the defect covered by means of a flap from the opposite thigh, preserving the entire length of stump and relieving the condition.

So also in severe septic cases requiring amputation, to keep in mind the possibility of supplying subsequently soft parts to fill in defects makes us refrain from cutting off much that heretofore has appeared valueless.

From whatever cause the condition may arise, the indications for the operation appear not infrequently.

TECHNIC

1. The area to be covered should present a clean, granulating surface—all crusts, thickened loose areas of skin should be removed and the whole area well coated with iodin. Then, with a sharp knife, the denuded area should be excised, cutting through the normal skin all the way round and removing a sufficient amount over the granulating area to insure a level cut surface. The skin margin is freed and elevated all the way round. The end is packed temporarily with gauze out of hot saline solution to check hemorrhage.

2. A flap is cut on the opposite leg or thigh, including skin, fascia and muscular tissue, with an attachment containing sufficient blood-supply to insure its viability until such time as it establishes circulation through the prepared area.

3. By this time if oozing has ceased on the stump, the flap should be brought over the end of the stump and sutured to three sides of the skin margin, care being taken that there is good apposition without tension.

The legs are then firmly fixed together so that there can be no movement to disturb the flap, first by means of silkworm-gut sutures and, secondly, by adhesive strips applied some distance from the site of the operation. The limbs are put up in a voluminous dressing for about sixteen days, when it is usually safe to sever the flap from the parent leg or thigh, and complete the operation by suturing the cut edge to the remaining skin margin on the stump. The area from which the flap has been taken is skin grafted.

Two characteristic cases are reported, one a leg and the other a thigh amputation, performed nearly five years ago while I was in Ancon Hospital.

Case 1.—West Indian negro, aged 36, suffering from typhoid fever, was struck by a train, July 2, 1908, and was brought to Ancon Hospital with a compound depressed skull fracture and traumatic amputation of right leg at junction of middle and upper thirds. The depressed fragments of skull were removed and the leg hastily amputated in upper third. The flaps were short and included lacerated tissue. After several days the attempt proved unsuccessful, the flaps parted and allowed the end of the tibia to protrude. The end of the stump was dressed until it presented a clean, granulating surface about 3 by 4 inches.

To shorten the bone sufficiently to allow the flap to meet without tension would have necessitated a sacrifice of leg stump and all it means in the wearing of an artificial leg.

Sept. 9, 1908, the patient was again anesthetized, the granulating end of the stump freshened, and the skin edges freed. Then a flap was laid down beginning on the inner side of the left thigh at about the junction of the middle and lower thirds, including skin, fascia and a small amount of muscular tissue, and extending to the level of the knee-joint. The flap, before it was cut, was about 5½ inches square. The attachment was nearly over the knee-joint.

The legs were placed together and the flap brought around the end of the stump and sutured to the skin margin along three sides, the fourth or internal side of the flap corresponding to the base of the flap. The base of the flap being higher than the denuded area, a good apposition was secured over the entire end of the stump. The legs and thighs were firmly fixed together by means of sutures and adhesive strips for a period of sixteen days, when the patient was again etherized and the flap severed from the parent leg, approximated and sutured to the remaining skin edge of the stump. The denuded area was skin grafted.

The result was all that could be hoped for. The bone was sufficiently covered by a tough, insensitive fleshy pad, which, by contraction, had markedly lessened the area of the transplant and thickened it to 2 or 3 cm. It has successfully withstood the wear and tear of an artificial leg for nearly five years.

Lately, the artificial leg has become so loose that the patient stuffed the lower part with rags, paper, etc., and allowed the end of the stump, that is, the autoplastic pad, to take the entire body-weight. This caused a slight abrasion which promptly healed when the irritation was stopped.

Case 2.—Traumatic amputation through mid-thigh, a patient almost in a moribund condition from shock and hemorrhage. Almost no operative measures except cleaning and trimming of lacerations could be performed on account of the patient's condition. The patient rallied and the stump was dressed until the end presented a clean, granulating surface of about 5 inches in diameter. He was anesthetized and a thick flap of skin, fascia and small amount of muscular tissue were cut from the opposite thigh, beginning nearly in the gluteal fold and extending down the antero-internal and postero-internal sides for a distance of about 6 inches, and having about the same width. The base was about midthigh. After freshening of the granulating surface and freeing of the skin margins on the stump, the flap was drawn around the end of the stump and the edges sutured to the skin margin on three sides. The thighs were firmly fixed together by means of sutures, adhesive strips and bandages. As there was more or less oozing from such an extended, denuded surface, the wound was dressed at the end of one week. On the sixteenth day the flap was severed from the parent thigh and approximated to the remaining skin margin on the stump. This furnished the patient with an ideal stump, well-covered with tissue, not painful and still retaining sufficient length to move an artificial leg.

The operation is indicated in those cases in which the requisite shortening to procure a good stump will interfere with its usefulness, and the patient's general condition is such that he can stand the operation plus about three weeks in bed. There is some pain associated with the fixed position the patients are forced to take, but this is not very severe.

The operation is contra-indicated in those cases in which a reamputation does not seriously interfere with the usefulness of the limb, because it subjects the patient to an added operation or two and prolongs the stay in bed by a considerable time with the attending dangers.

THE SIGNIFICANCE OF GASTRIC ULCER WITH RESPECT TO GASTRIC CANCER

A STUDY OF FIVE HUNDRED AND SIXTY-SIX CONSECUTIVE OPERATIVELY AND PATHOLOGICALLY DEMONSTRATED CASES OF CANCER OF THE STOMACH [*]

FRANK SMITHIES, M.D.
CHICAGO

During the past decade there has been a growing conviction among clinical and laboratory workers that there exists an increasing number of cases clinically admitting a diagnosis only of chronic gastric ulcer which do not pursue an orthodox course of chronicity, but often rapidly assume aspects of malignant disease. If such cases come to laparotomy or necropsy, the surgeon or pathologist demonstrates cancer.

Conversely, surgically and pathologically proved cases of gastric cancer frequently reveal an early clinical history, which at any stage prior to the terminal period of evident malignancy might logically be interpreted clinically as chronic gastric ulcer.

The subject has etiologic, diagnostic and prognostic aspects. Inasmuch as this group of cases satisfies the diagnostic requirements for gastric ulcer and this process of whatever nature it may be later assumes characteristics that we associate with malignancy, and as we have no known medical cure for gastric neoplasms, it would appear imperative to determine how frequently this type of affection exists, in what manner, if any, it manifests itself, the possibilities of its recognition and the indicated treatment when demonstrated. This study has been made in an endeavor to secure information in these directions.

An analysis has been made of 566 operatively and pathologically demonstrated cases of gastric cancer from the Mayo Clinic.

CLINICAL CONSIDERATION

Significance of History: Sex.—In the 566 cases, there were 436 males and 130 females, or 3.1 males to each female. It will be recalled that this is almost the identical sex ratio existing in non-malignant chronic gastric ulcer.[1]

Age.—The youngest patient in the series was 20 years of age; there were twenty-six patients aged over 70. More than three-fourths of the cases came between the ages of 40 and 70 years. A comparative study of 134 cases of non-malignant chronic gastric ulcers shows that rather more than one-half were in the 40 to 70-year period.

Etiologic Factors.—A history of trauma was obtained in 3.4 per cent. of the cases. In 2.9 per cent. the traumatism occurred in the early history of the affection, and it was noted frequently to cause or precipitate symptoms. There were three instances in which husband and wife became affected with cancer within a few months of each other. A family or blood-relationship history was obtainable in 9.2 per cent., and a history of tuberculosis in 1.2 per cent.

Previous Disorders of Digestion (The "Precancerous" History).—More than ten years ago Graham[2] called attention to the significance of the early clinical history in patients presenting themselves in his service for evident gastric cancer. He stated that more than 47 per cent. of his operatively demonstrated cases of cancer had had previous histories which strongly suggested that the cancer had followed a chronic gastric ulcer, existing variously from three to thirty-seven years. Graham also emphasized the fact that nearly 40 per cent. of his cases of cancer were not associated with the previous so-called "ulcer history," but that in this group of cases cancer developed in stomachs which previously functionated normally.

The value of early history as indicating that succeeding cancer of the stomach has its origin in such hypothetic ulcer has been justly questioned. The weakness of the argument appears to be at least threefold: (1) the clinical variation in an ulcer symptom-complex, (2) the indefinite ideas existing as to the time element in the development of "chronic" ulcer and of cancer, and (3) the difficulties in actually proving whether or not a process which is later shown to be malignant was ever anything else. I shall consider these points seriatim.

---

[*] Read before the American Gastro-Enterological Society, Washington, D. C., May, 1913.

[*] From the Division of Gastro-Enterology, Mayo Clinic.

1. Smithies: Am. Jour. Med. Sc., March, 1913, p. 340.
2. Graham: Collected Papers by the Staff of St. Mary's Hospital, i, 111.

1. To admit the indefiniteness of an ulcer symptom-complex is to grant at once that mistakes in diagnosis are readily possible. That this is a fact has come within the experience of all gastrologists who have handled either a few or a large number of cases. In spite of personal opinions, we must admit that the only gastric ulcers that we can positively say exist are those which we can see or feel. While it may be clinically safer to treat a given case as gastric ulcer, as recommended by Shutz,[3] nevertheless such uncertain procedures have undoubtedly led to error, confusion and irreparable injury to patients. The prognostic aspect of the case is of greater import than the question of type of treatment based on uncertain diagnosis.

In endeavoring to gauge the importance of the previous (the precancerous) gastric history of the cases in our series we found it necessary to group them according to accepted clinical symptom-complexes, of ulcer and of cancer, respectively. This mode of procedure has many faults, but it should be emphasized that this method of classification furnishes the bulk of the literature on the subject.

The clinical symptom-complex considered for gastric ulcer is based on Friedenwald's[4] recently analyzed 409 cases, while that for cancer is compiled from the work of Osler and McCrae.[5] If the value of such grouping is questioned, then the value of much that makes up accepted knowledge of the diagnosis and the treatment of the two ailments must also be questioned. If the symptom-complexes indicated mean clinically ulcer or cancer of the stomach, then the facts that we have to present are not without significance.

We have taken the following symptom-complex to mean gastric ulcer clinically: a form of gastric malfunction occurring usually between the ages of 10 and 70 years, characterized by periodic or continuous abdominal discomfort or pain, frequently bearing definite relation to food ingestion, and often associated with epigastric or dorsal tenderness, vomiting, loss of blood (hematemesis or melena) and with hyperacid gastric contents.

We have considered as "primary" cancer, clinically, a form of gastric malfunction of a downwardly progressive nature, usually occurring in persons between the ages of 40 and 70 years, who have been previously normal gastrically, the imperfect function being characterized by abdominal distress or pain, usually associated with cachexia, loss of blood, epigastric tumor, vomiting and with gastric contents revealing motor defects, low free hydrochloric acid and the presence of organic acids and of foreign micro-organisms.

In grouping our material under these accepted clinical symptom-complexes we find that of the 566 proved cases of gastric cancer, 239, or 41.8 per cent. fall into the cancer-following-ulcer classification, while 182, or 32.1 per cent., are in the "primary" cancer division. There is, in addition, a group which may be termed cases of "irregular ulcer" that numbers 106, of 18.7 per cent. Twenty-two patients, 3.9 per cent., had a previous clinical history of gall-bladder affection, while seventeen, or 3 per cent., had early symptoms pointing to primary processes in the appendix, the pancreas or the bowel. Combining the returns from the two ulcer groups, it is seen that precancerous history indicates that 60.5 per cent. of the subsequently demonstrated cases of cancer gave earlier clinical evidences which we associate with chronic gastric ulcer, prior to the time when the ailment assumed the clinical picture that we associate with gastric malignancy. In but 32.1 per cent. was the disease, from its inception, continuous and progressively downward, and that was in persons who had been previously sound gastrically. These figures are not to be taken as they stand to indicate that nearly two-thirds of all chronic gastric ulcers later become malignant, because we know that ulcers frequently heal spontaneously or continue as chronic, inflammatory processes. Added significance, however, is given to the figures by the observation of the surgical pathologist that more than two-thirds of all excised chronic calloused gastric ulcers show early evidences of malignant metamorphosis (Wilson and MacCarty[6] and MacCarty.[7])

2. The analysis of any considerable material, ulcer or cancer, reveals many striking variations in the duration of the morbid process. Both clinical and pathologic differentiation should be made between the terms old and chronic as applied to ulcer and cancer. Chronicity, pathologically, does not necessarily mean that the disease is old, that is, of long duration in terms of months or years. Large, excavated, calloused ulcers may apparently develop in a few weeks, while many small, indurated round ulcers may give even obstructive symptoms for years, and this also applies to cancer. Within two weeks of the onset of disability I have seen a patient exhibit general carcinosis, with a large primary mass in the stomach. Another patient may have noticed an epigastric nodule for a year, and yet laparotomy demonstrates a small mass well-confined to the wall of the stomach.

The average length of time of all symptoms in our 182 cases clinically satisfying the symptom-complex of cancer was 7.1 months. Of this group the shortest history extended over but two weeks and the longest was about three years. In nine cases (1.6 per cent.) cancer of the stomach was found at exploration, when there had been no previous indications of gastric disorder. Such cases have been described by Osler,[8] Chesnel[9] and others.

Of the 239 cases clinically furnishing the symptom-complex of chronic gastric disorder previous to the period of evident malignancy, the average duration of symptoms was 11.4 years. In this group the average duration of the supervening malignant course was 6.1 months. It seems thus manifest that the periods of downward progression closely approximate in the two classes of cases, wholly independent of the earlier gastric history of the person. From our knowledge of disease processes in general, it would seem scarcely possible that the "primary" cases of cancer mentioned before existed for any considerable length of time without giving clinical evidences of their presence. Especially is this emphasized when we are aware that between 60 and 70 per cent. of all proved cases of gastric ulcer and gastric cancer are so located in the visceral wall as to early interfere with the stomach's emptying power. I have been frequently impressed by the fact that many so-called "primary" gastric cancers in the early weeks of their disturbance gave clinical symptoms that are commonly ascribed to chronic ulcer.

3. The demonstration that a long-standing gastric disturbance which is later shown to be malignant was ever benign leads largely into realms of speculation. The chief arguments in support of this supposition appear to be the following:

A. After gastro-enterostomy for chronic ulcer, when the ulcer is not excised, it is stated that such a person rarely develops gastric cancer (Paterson,[10] Gressot[11] and others). The argument loses much of its force when we recall that in such a patient the entire physiology of the stomach and related viscera may have been upset. It is well recognized by able surgeons and physiologists that gastro-enterostomy is more than a simple procedure of "drainage." In the large majority of gastric extracts from stomachs when gastro-enterostomy has been performed, it is possible to demonstrate, chemically or microscopically, both duodenal and jejunal contents. Just what effect these foreign substances have on gastric ulcers or gastric cancers we have yet no means of knowing. We do know, however, that the parts of the alimentary tract from which they come are rarely affected with cancer. In our series of cases of gastric cancers, there are four patients which later developed cancer following gastro-enterostomy for ulcer. It also seems to hold that in cases of gastric cancer in which no pyloric obstructions are demonstrable gastro-enterostomy grants a longer lease of life than when such operations have not been performed.

---

[3] Shutz: Wien. klin. Wchnschr., Oct. 10, 1912, p. 1513.

[4] Friedenwald: Am. Jour. Med. Sc., August, 1912, p. 157.

[5] Osler and McCrae: Cancer of the Stomach, Practice of Medicine, 1912.

[6] Wilson and MacCarty: Am. Jour. Med. Sc., December, 1909, p. 846.

[7] MacCarty: Surg., Gynec. and Obst., May, 1910, p. 449.

[8] Osler: Philadelphia Med. Jour., 1900, p. 245.

[9] Chesnel: Thèse de Paris, 1877.

B. Duodenal ulcer of the indurated type is a relatively more common affection than is gastric ulcer, yet carcinoma of the duodenum is a rarity. It is held that if cancer develops on chronic ulcer a great frequncy of its duodenal incidence should be expected. That the duodenum has a protective mechanism against malignancy appears to be shown by the surgical observation that only rarely does cancer at the pylorus, on the stomach side, pass to the duodenum by direct extension. In our series only four such instances were noted. The difference in the character of the tissue in which the chronic ulcer is implanted is also demonstrated by the fact that it is not uncommon to find that primary ulceration of the duodenum which extends up to the pylorus, assumes malignant characteristics on its gastric side while the ulcer on the duodenal side remains benign. There are six such cases in our series. We have also five cases in which malignant gastric ulcer was demonstrated together with benign calloused duodenal ulcer. Cancers of the duodenum occur in the great majority of instances, about or below the papilla of Vater. It is well known that this region of the viscus suffers traumatism from gall-stones, altered secretion of the liver and pancreas and from infective processes of the gall-tract. The upper part of the duodenum, where ulcer is common, is relatively immune to these influences, and also from the intense acidity and the associated peptolytic power of the gastric juice, which may irritate gastric ulcers.

C. Pathologists readily grant that there is a type of gastric affection which they class as "ulcus carcinomatosum." They demonstrate this generally at post-mortem. They do not, however, demonstrate why this type of ulceration exists, by revealing any characteristic changes in the gastric mucosa in which it occurs, nor do they show that from its beginning it was ever anything but malignant. They are willing to grant that it is something different from primary cancer which later ulcerates, but just what that difference is they do not state. This type of affection appears curiously to exist as an isolated entity with no explanation of its existence or prophecy as to its future course.

D. Clinicians hold that malignant ulcer exists in from 3 to 6 per cent. of all ulcers of the stomach (Fenwick,[12] Rosenheim[13]). The various observers, however, do not detail just how to segregate this group clinically from chronic gastric ulcer, nor do they offer suggestions of guidance for the determination of just what chronic ulcers are destined to pursue a benign course.

In our series there were 239 cases which, up to within an average time of 6.1 months before being absolutely demonstrated as cancer, showed nothing to indicate that were a laparotomy to be performed in that period anything other than chronic calloused gastric ulcers would be found. Only the subsequent course or the examination of fresh tissue at operation revealed the true nature of the affection. In this group of cases cancerous ulcers were found on laparotomy in 105 (43.9 per cent.) and extensive carcinomas, with or without ulceration, in 134 (56.1 per cent). Of the 183 cases with a clinical history of primary carcinoma, ulcus carcinomatosum was demonstrated in 28 (15.8 per cent.), while in 154 (84.2 per cent.) extensive growth was found. Of the 106 cases with clinical history of irregular gastric ulcer in the precancerous stage, ulcus carcinomatosum was shown in 22 (20.7 per cent.), and in 84 (79.2 per cent.) extensive involvement, with or without secondary ulceration.

These observations suggest several points. Development and careful interpretation of the early—the precancerous—history permits patients coming to laparotomy at a stage when in more than one-half of the instances the maximum advantage of localization of the disease is available, and hence the maximum benefit accrues to the individual case. In about one-fifth of the cases of so-called primary gastric cancer ulcus carcinomatosum can be demonstrated at operation, and these appear to be generally favorable cases for operative procedure, compared to their fellows. This is especially to be emphasized inasmuch as it has been shown by MacCarty and Blackford[14] that time-duration of symptoms bears no apparent relation to the size and extent of involvement of the lymph-nodes, and that the operative and subsequent mortality are in direct proportion to the amount of involvement of the lymph-nodes.

It would appear from the brief consideration of the objections to the interpretation of the so-called "precancerous" history with respect to the succeeding neoplasm having developed on earlier chronic gastric ulcer, as emphasized by Graham, that so far as we can judge clinically, the careful development of such history furnishes extremely valuable diagnostic and prognostic information. It would appear from the facts submitted that such interpretation allows the greatest degree of operative benefit with the minimum of operative risk. These facts have especially to be considered when we recall that we have no better clinical guide and that those who object to the significance of the "precancerous" history have nothing better to offer.

SIGNIFICANCE OF CLINICAL SYMPTOMS

Periodicity of Symptoms.—One of the strongest clinical evidences in the diagnosis of chronic gastric ulcer is the periodic recurrence of dyspeptic symptoms with perfect or fair health between the attacks. Graham,[15] Friedenwald[4] and I[1] have pointed this out. In 239 of the cases furnishing the material for this report in which there was a precancerous history of digestive disturbance, 81 per cent. complained of attacks of discomfort in that period, in 13.3 per cent. the attacks were of rare occurrence, and 4.7 per cent. had had continuous disturbance. When the period of malignancy supervened on the dyspeptic storm the affection was continuous and progressive in more than 99 per cent., irrespective of the earlier history. In the 182 cases making up the "primary" cancerous group, continuous disturbance was noted in 95.1 per cent. and frequent periodic attacks in 4.8 per cent.

---

[10] Paterson: Surgery of the Stomach, 1913, p. 248.

[11] Gressot: Berl. klin. Wchnschr., 1912, xlix, 22.

[12] Fenwick: Quoted by Paterson, Surgery of the Stomach, 1913, p. 248.

[13] Rohenheim: Ztschr. f. klin. Med., Breslau, 1890, vii, 116.

[14] MacCarty and Blackford: Ann. Surg., June, 1912, p. 811.

[15] Graham: Prominent Symptoms in the Diagnosis of Gastric and Duodenal Ulcers, THE JOURNAL A. M. A., Aug. 22, 1908, p. 651.

Types of Pain.—In the group of cases comprising cancer following previous dyspepsia, severe pain and colics were noted in 23 per cent., steady ache in 48 per cent. and abdominal discomfort in 28 per cent. In the primary cancer group colicky pain was noted in but 6.6 per cent., steady ache in 32.4 per cent., and vague discomfort or "bloat" in 56 per cent., while in 4.3 per cent. there was no abdominal discomfort whatever. Opiate relief of pain was required in 6.5 per cent. of the first group of cases and in 2 per cent. of the second group.

Food Relation of Abdominal Pain or Distress.—In the diagnosis of chronic gastric ulceration, the relief of discomfort by the ingestion of food (if this form of relief be fairly constant) is granted to be a most valuable diagnostic sign. In a chronic dyspeptic its continuous presence is often almost pathogenic for ulcer. At the stage when the cases in our series came under observation, of the dyspepsia-preceding-malignancy group, food ease was present in 20.9 per cent., food aggravation in 46.4 per cent., food of negative significance in 27.4 per cent., and uncertain in 5.1 per cent. In the group of primary cancers, food ease was noted in but 3.2 per cent., food aggravation in 57.6 per cent., food of negative significance in 36.8 per cent., and of uncertain effect in 2.1 per cent.

Hemorrhage.—Intermittent bleeding, melena or hematemesis, is considered as almost conclusive evidence that peptic ulcer exists. While only but from 22 to 40 per cent. (Friedenwald,[4] Smithies[1]) of gastric ulcers bleed, yet when hemorrhage occurs, other things being equal, it is clinically assumed that ulcer is present. In the series of cancers here analyzed, hemorrhage was noted in 97 cases. Of the group designated by history symptomatology as malignant, following ulcer, hemorrhage occurred in 62.9 per cent.; in the group styled from early history "irregular" ulcer hemorrhage occurred in 19.5 per cent., while in the group of "primary" cancers hemorrhage occurred in 16.5 per cent. Of the whole number bleeding, 52 per cent. bled at least two years prior to their coming under observation, while 42 per cent. had bled within two years of that time. In 6 per cent. the time of hemorrhage was not determined. Of those who bled within the two-year period, 77.5 per cent. comprised cases in the non-primary cancerous group.

Anemia.—Of one or more estimations of hemoglobin in 250 of the cases, the average hemoglobin was 69.6 per cent. for the primary cancerous group and 67.2 per cent. for the dyspepsia-before-cancer class. The average for the series was 68.1 per cent.

Vomiting.—Of the entire series 326, or 57.5 per cent., of the cases vomited, and of this number 57 per cent. vomited daily. Of the series, 132 (40.5 per cent.) exhibited delayed vomiting. In but 58 (15 per cent.) was the vomitus dark or "coffee-ground."

SIGNIFICANCE OF PHYSICAL EXAMINATION

Tumor or ridge in the abdomen (generally epigastric) was demonstrated in 411 instances (72.6 per cent.). It was movable in 63.6 per cent. Of the primary cancerous group tumor was present in 39.8 per cent., while in the ulcer-cancer class it was shown in 60 per cent.

Metastases were demonstrated in eighty-six cases (14.7 per cent.) before laparotomy and were, in the order of frequency, rectal and pelvic, cervical and axillary, navel and abdominal wall, and in the groin. In the primary cancerous group, metastases were present in 20.8 per cent. and in the non-primary class in 13 per cent. When such metastases were present, the cases were generally inoperable.

SIGNIFICANCE OF TEST-MEAL FINDINGS

The Ewald test-breakfast is used in the Mayo Clinic. It is preceded twelve hours by a motor-meal after the suggestions of Strauss and Hansmann. Routine quantitative and qualitative estimations are performed by the Topfer method.

There is not space here to go into elaborate detail of the information derived from examination of gastric contents in our series of 566 cases of cancer. A few of the more important points will be detailed, and the complete report reserved for a subsequent paper.

Food Remnants.—Motility was interfered with in 73.9 per cent. of the entire series. Of the primary cancerous group, remnants were present in 64.8 per cent. and in the non-primary class in 74.2 per cent.

Acidity of Gastric Extract.—In the primary cancerous group there were 55.4 per cent. of cases in which hydrochloric acid was absent, in 11.5 per cent. hydrochloric acid was between 20 and 50. In this group 79 per cent. had total acidity under 50, and 84 per cent. had combined acidity and acid salts under 50.

In the non-primary cancerous group, free hydrochloric acid was absent in 49 per cent., in 20 per cent. it was between 20 and 50, and in 46.3 per cent. it was under 50. Total acidity was below 50 in 78 per cent., and combined acidity and acid salts below 50 in 90 per cent.

Lactic Acid.—In the primary cancerous group this was demonstrated in 52.2 per cent., while in the non-primary class it was present in 44.9 per cent.

Occult Blood.—This was shown (benzidin or guaiac tests) in 73 per cent. of the primary cancerous class and in 77 per cent. of the non-primary group.

Microscopic Examinations of Gastric Extracts.—These were made on the last 146 cases of gastric carcinoma by the agar-differential-stain method devised by me.[16]

Oppler Boas Bacilli.—This form of organism was demonstrated in 93.8 per cent. of all the cases. In this same series, yeasts were shown in 50.7 per cent. and sarcines in 17 per cent. Oppler-Boas bacilli and yeasts were combined in 30 per cent., Oppler-Boas bacilli and sarcines in 10 per cent. and Oppler-Boas bacilli together with yeasts and sarcines in 9.2 per cent. Cells showing atypical mitoses were present in 5 cases.

Special Tests.—In 141 instances of demonstrated cancer the glycyltryptophan test was made. It was positive in 40 per cent.

In thirty-one cases the hemolytic reaction to alien erythrocytes *in vitro* was positive in 47.2 per cent.

Woodyatt and Jacques[17] have recently pointed out that in gastric cancers and ereptic ferment, as estimated by the modified formaldehyd titration method suggested by Sorenson and Schiff,[18] can be demonstrated in excess in the gastric extract that has been passed through a

---

[16] Smithies: A Method for the Microscopic Examination of Gastric Extracts and of Feces, Arch. Int. Med., June, 1912, p. 736.

[17] Woodyatt, R. T., and Jacque, J. L.: The Peptolytic Power of Gastric Juice and Saliva with Special Reference to the Diagnosis of Cancer, Arch. Int. Med., December, 1912, p. 560.

[18] Sorenson and Schiff: Ztschr. f. physiol. Chem., 1909, xiii, 27.

Berkefeld filter. Our experience with the original procedure is briefly summarized as follows: The average formaldehyd index of 57 cases of gastric cancer was 21; the average index of 40 cases of benign gastric ulcer was 10.8 and the average index in 75 cases of duodenal ulcer was 11.9. In 17 cases of achylia gastrica, the average formaldehyd titration index was 14.1, of 10 cases of pernicious anemia, 14.5, and in 5 cases of carcinomas of the liver, 4.25. It would appear that in some instances, the estimation of the ereptic power of gastric juice toward peptone solutions is of some value when taken in consideration with clinical history and symptomatology.

Wolffe-Junghans' Test for Soluble Albumin.—By this quantitative estimation method we have made 260 tests on gastric extracts showing achylia or free hydrochloric acid below 20, from cases in which there was no twelve-hour retention. There were eighty-three cases of gastric cancer in the series. The reaction was positive in 86 per cent. In this group there were 20 cases of lesser curvature and cardiac malignancy, and the reaction was positive in 75 per cent. Of 11 cases of ulcus carcinomatosum without gastric retention the reaction was positive in 10 cases, or 90.9 per cent. In 11 cases of extragastric carcinomas (liver and gall-tract) the reaction was positive in 54 per cent. In 10 cases of pernicious anemia, the reaction was positive in 10 per cent; in 17 cases of achylia gastrica, positive in 17 per cent. It would seem that this test is of value when taken in consideration with other evidence in carcinomas not associated with pyloric obstruction or palpable tumor, for example, growths at the cardia, the fundus, high on the lesser curvature, and on the posterior wall, and in cases in which a large carcinoma, with considerable induration, holds a pylorus open.

We have not found either the colloidal nitrogen or antitryptic estimations of practical value.

Roentgen-Evidence.—About 10 per cent. of ulcers and cancers are anatomically so situated as to prevent positive general clinical recognition. They are usually on the lesser curvature, high, at the cardia, fundus and on the posterior wall. In this type of case the fluoroscope and roentgenogram often localize definitely a process and turn a clinical doubt into certainty.

SURGICAL CONSIDERATION

Location.—In 210 cases (39 per cent.) the ulcus carcinomatosum or the growth was at the pylorus; in 27.1 per cent. on the lesser curvature near the pylorus; in 19.3 per cent. general; in 7.2 per cent. on the posterior wall, and in 4.2 per cent. at the cardia. The greater curve was involved in 1.1 per cent., the fundus in 0.75 per cent. and the anterior wall in 0.37 per cent. In nine cases there were simple and malignant ulcers associated in the same stomach, and in five cases simple duodenal ulcer and malignant gastric ulcer.

The figures for location are to be contrasted with those of Welch,[19] Brinton,[20] Lebert[21] and others. These authorities observed generally the terminal results of cancer of the stomach, nor were their observations always in a consecutive series, examined by uniform procedures. To any one who has had access to post-mortem material the difficulties connected with primary localization of gastric neoplasms need not be explained. The localization figures of our series, however, closely correspond to the location of chronic, calloused gastric ulcer, as shown by the tables of Welch[22] and myself.[1]

Lymph-nodes were involved in 71 per cent., irrespective of the early or late history. In 22.2 per cent. there was no lymph-node involvement and these cases were, as a rule, favorable for operation. Free fluid in the abdomen was present in 3.9 per cent.; these were inoperable cases.

There were sixteen cases in which a carcinomatous ulcer had been previously excised, but in which the involvement of the lymph-nodes (often microscopic only) had been noted—in which the person later returned with huge inoperable masses in the epigastrium.

Twelve per cent. of the patients died within six months following operation, but 36.6 per cent. remained well for more than three years, and 22 per cent. remained well over five years.

PATHOLOGY

It is not feasible to give here a detailed description of the specimens secured at laparotomy in this series of gastric cancers, and only a gross summary will be made.

The specimens were first examined in frozen section within a few minutes after their removal from the patients. They were next fixed in Melinkow's modification of Kaiserling's fluid and again sectioned and examined.

Types of Growth.—Adenocarcinomas were demonstrated in 556 instances (98.2 per cent); colloid carcinomas, 5 times; fibromas, 4 times, and sarcoma once. In 155 instances (27.4 per cent.) ulcera carcinomatosa were shown. These may have been primarily such, had formed from previous chronic ulcer or had resulted from surface proteolytic ulceration of preceding cancer. It is often impossible to say, without clinical history or test-meal findings, whether an ulcus carcinomatosum developed as such or whether it is a secondary result of a "primary" cancer. At the present stage of our knowledge, the surgical pathologist can positively say only that in a given specimen of chronic, indurated gastric ulcer, *cancer is or is not present.* There appears to be a borderline class, however, in which surgical pathologists of the widest experience in the examination of fresh tissue can often distinguish cellular arrangement or intracellular change of such nature as to warrant their stating that the process is "precancerous." Not infrequently the subsequent course of the ailment bears out the histologic prophecy.

In the experience of Wilson and MacCarty,[6] 71 per cent. of 153 cases of undoubted gastric carcinomas presented gross and microscopic evidence of previous ulcer. These observers also demonstrated that 68 per cent. of resected chronic ulcers of the stomach and duodenum (the latter furnishing a very small proportion of cases) were associated with cancer. In several instances MacCarty noted that the presence of erosions, simple round ulcer and ulcus carcinomatosum in the same specimen suggested possibilities of transition corresponding to that shown by Woolley[23] in cases of adrenal tumor. MacCarty has emphasized the difficulties of always differentiating between simple hyperplasia and malignant hyperplasia. He suggests that hyperplasia is a forerunner of malignancy, that hyperplasia varies in degree, that cancer is malignant hyperplasia, which also varies in degree, and that some degree of both processes are indistinguishable, histologically. This view is well within the opinion of Adami.[24] It seems to be partially substantiated by the recent work of Drew[25] and Levin[26] in experimental tissue proliferation and inoculation of malignant tumors.

---

[19] Welch: Cancer of the Stomach, American System of Medicine, ii.

[20] Brinton: Brit. and For. Med.-Chir. Rev., January, 1857.

[21] Lebert: Traité pratique des maladies cancéreuses, Paris, 1851, p. 97.

[22] Welch: Simple Ulcers of the Stomach, Pepper's System of Medicine, ii.

[23] Woolley: Tr. Assn. Am. Phys., 1902, No. 17, p. 627.

Association of Malignant and Benign Processes.—In this series of gastric cancers there were five instances of simple ulcer of the duodenum associated with malignant gastric ulcer. In nine cases, simple and malignant ulcers were found in the same stomach. Independent cancer of the stomach and of the duodenum was demonstrated once. There were two cases of multiple gastric cancers. Six times it was observed that malignant gastric ulcers stopped sharply when duodenal mucosa was reached, but in seven instances of extensive gastric cancers it was shown that the duodenum was secondarily involved by direct extension.

SUMMARY

1. A number of cases clinically admitting only a diagnosis of chronic gastric ulcer are shown to be malignant at operation. Many cases of gastric cancer reveal a "pre-cancerous" history which at any stage prior to the terminal period of malignancy satisfies the clinical symptom-complex of chronic gastric ulcer.

2. A study of 566 consecutive cases of gastric cancer, operatively and pathologically demonstrated, has been made in the attempt to determine how frequently chronic ulcer precedes gastric cancer and how this change is manifested clinically.

Clinical Consideration.—The sex ratio in gastric cancer is approximately that of chronic gastric ulcer (3.1 males to 1 female). More than three-fourths of the cases of gastric cancer occur in persons between the ages of 40 and 70 years; more than one-half those of chronic gastric ulcer (134 cases) between the ages of 40 and 70. A family history or one of blood-relationship of gastric cancer existed in 9.2 per cent.—a history of tuberculosis in 1.2 per cent.

Precancerous history indicates that 41.8 per cent. of proved cases of gastric cancer presented early symptomatology of chronic gastric ulcer; 18.7 per cent. showed the early symptomatology of "irregular" gastric ulcer, and 32.1 per cent. of the cases had the symptom-complex of gastric cancer, without previous gastric malfunction. Thus in more than 60 per cent. of the cases of gastric cancer the patients had previous dyspeptic history and this history was generally that of chronic gastric ulcer.

The length of time of all symptoms of the "primary" cancerous group (182 cases) was 7.1 months. The average length of time of the precancerous dyspeptic period in 239 cases was 11.4 years. In this group the supervening period of evident malignancy averaged 6.1 months.

Development of precancerous history permits patients coming to laparotomy at a stage when in more than one-half of the instances surgical advantages of a localized process are available. In about one-fifth of the cases of "primary" gastric cancers, ulcus carcinomatosum is demonstrated operatively.

Significance of Clinical Symptoms.—Periodicity: In 81 per cent. of the cases in which prolonged dyspepsia had preceded cancer, periodicity of symptoms was noted in that stage, while in 99 per cent. of the cases periodicity was absent when the process became evidently malignant. In but 4.8 per cent. of 182 cases of "primary" cancer were there periodic attacks of distress.

Types of Pain.—Nearly one-fourth of the patients in whom dyspepsia preceded malignancy had prostrating pain (colics, etc.), while only about one-fifteenth of the patients with "primary" cancer exhibited this type of distress. Opiate relief was required in 6.5 per cent. of the former class and in 2 per cent. of the latter.

Food ease of pain was present in more than one-fifth of the cases in which malignancy followed clinical chronic gastric ulcer and in 3.2 per cent. of the "primary" cancer group.

Hemorrhage.—Melena or hematemesis was noted in 17.1 per cent. of the cases. Of the group styled malignancy following ulcer, hemorrhage occurred in 62.9 per cent.; in the "irregular ulcer" group before malignancy, in 19.5 per cent. and in "primary" cancer group 16.5 per cent. Of patients bleeding within two years of coming under observation, more than three-fourths fell in the ulcer-before-cancer classification.

Hemoglobin estimation was rather higher in the primary cancer group than the ulcer-preceding-malignancy class.

Vomiting was observed in more than 57 per cent. of the cases of gastric cancer. More than 40 per cent. exhibited delayed vomiting. Of the entire group, 15 per cent. gave a history of dark or "coffee-ground" vomit.

Nearly three-fourths of the cases of gastric cancer exhibit abdominal tumor or ridge. This is present in nearly two-fifths of the cases of "primary" cancer and more than three-fifths of the cases in which ulcer preceded malignancy clinically.

In more than one-fifth of the cases in the "primary" cancer division and in about one-ninth of the cases in the non-primary group, metastases were demonstrated before laparotomy

Test-Meal Findings.—Delayed gastric emptying power was evidenced in nearly two-thirds of the cases in the primary cancer class and in nearly three-fourths of cases in the non-primary division.

Acidity.—In 55.4 per cent. of primary gastric cancer cases free hydrochloric acid was absent; in 11.5 per cent. it was between 20 and 50.

In the non-primary cancer class free hydrochloric acid was absent in 49 per cent. and in 20 per cent. it was between 20 and 50.

Lactic Acid.—This is more commonly noted in the primary cancer group than in the non-primary division.

Occult Blood.—This is rather more frequently demonstrated in the non-primary cancer class than in the primary cancer group.

Oppler-Boas Bacilli.—These were demonstrated in 93.8 per cent. of cases of gastric cancer by the differential agar-stain method.

Glycyltryptophan Test.—This was positive in 40 per cent. of the cases (141). The *hemolytic* reaction was positive in 47.2 per cent. of the cases (31). The *formaldehyd titration index* was uniformly higher in gastric cancer and ulcera carcinomatosa than in other gastric ailments. The estimation of soluble albumin by the *Wolff-Junghaus test* was more uniformly positive in cancer and carcinomatous ulcer cases than other forms of gastric disturbance.

Roentgen-Ray Evidence.—In about 10 per cent. of the cases of gastric cancer evidence returned by fluoroscope and roentgenogram is of distinct value in making absolute diagnosis of physically inaccessibly located cancers.

---

[24] Adami: Malignancy, Principles of Pathology, p. 616.
[25] Drew: Jour. Path. and Bacteriol., July, 1912, p. 42.
[26] Levin: Jour. Exper. Med., 1912, No. 12, p. 149.

Surgical Consideration.—The locations of ulcera carcinomatosa and cancer as shown by laparotomy closely approximate those of chronic gastric ulcer, but do not correspond to the post-mortem localization of gastric cancer. More than one-fifth of the cases of gastric cancer revealed no involvement of the lymph-nodes, with generally favorable operative outlook. In nearly 4 per cent. free abdominal fluid was present. These were inoperable cases.

Pathology.—More than 98 per cent. of gastric cancers were adenocarcinomas. Sarcoma occurred but once in 566 cases. More than one-fourth of gastric cancers show ulcerative changes, as primary or secondary type of growth. It is usually an easy matter to state definitely whether or not a given specimen is at the time benign or malignant. There is a group of cases of chronic ulcer in which examination of fresh tissue reveals cellular or intracellular variations of such type as to warrant designation of "precancerous" ulcer. It is often impossible to distinguish stages of simple and malignant hyperplasia histologically. Benign ulcers of the duodenum may be associated with malignant gastric ulcers. Benign and malignant ulcers may be associated in the same stomach.

122 South Michigan Avenue.

THE MEDICINE OF OUR FOREFATHERS *

JAMES J. WALSH, M.D., PH.D., SC.D.
Professor of Physiologic Psychology at the Cathedral College, New York
NEW YORK

In talking to the oldest medical society in this country it has seemed to me that no subject would be more suitable than what our forefathers accomplished in medicine. Our generation has become so accustomed to lauding itself as "the heirs of all the ages in the foremost files of time" and therefore so far ahead of the past that really our forefathers were to be pitied because they did not live to see our glorious time, that I have sometimes taken a little almost malicious pleasure in pointing out how many of the things that we think new are indeed very old. Anesthesia and antisepsis, sometimes looked on as the triumphs of our time, were anticipated by preceding generations in very striking ways. Tom Middleton, the English poet of the seventeenth century, has spoken of "the mercies of old surgeons who put their patients to sleep before they cut them," and we have the records of two or three forms of anesthesia during the thirteenth and fourteenth centuries, at least one of them by inhalation. Strong wine was used as a dressing for wounds, and the surgeons effected union by first intention and boasted about it (we owe that Latin expression "first intention" to them), and even declared that surgeons whose wounds suppurated when they were made through an unbroken skin surface were responsible for the evil results that followed.

Indeed, practically the whole of our surgery which we have been inclined to think of as the particular development of our generation was anticipated in the long ago. Operations were done on the skull for abscess and tumor in the brain, on the thorax for the pus and other fluids, and on the abdomen for all sorts of internal conditions. Particularly the surgeons operated for the radical cure of hernia, employed an exaggerated Trendelenberg position in order to have the intestines drop away from the site of operation, fastening their patients' heads down on a slanting board and in general solving the technical problems very much as we do by special sutures, by the use of wire auxiliaries and other things of that kind. Hugo von Pfolspeundt invented a flanged tube which he inserted into the intestines when they were badly wounded, bringing the intestines together above them and asserting that the tube would be passed out, but not until after such intestinal agglutination had taken place as would prevent the extravasation of the contents of the intestine. This anticipation of the Murphy button five centuries ago is interesting but not so striking as the use of the trachea of an animal for this purpose of which we have a description, the inventor declaring that the trachea would be gradually disintegrated, but not before aglutination of the edges of the wound would take place.

As a matter of fact, after considerable study of the history of medicine as well as other phases of human intellectual activity, I have come to the conclusion that whenever men deliberately and seriously face any problem they solve it about as well as at any other period in the history of medicine. While we talk much of progress, let us not forget that in the great phases of intellectual achievement there is no such thing as progress, but on the contrary abundant evidence of decadence. No one thinks for a moment of saying that there is progress in literature or that the writers of our time are doing anything that is serious or likely to endure. Not long since the New York *Times* declared on the occasion of the death of Mark Twain that of the four men who had international reputation in literature, that is, who in our generation had been read generally outside of their own countries, three were now dead. The four were Zola, Tolstoi, Mark Twain and then the living one, Rudyard Kipling. Kipling, like Jeffries and some others, has not "come back" and the list is interesting therefore as showing the caliber of our literary achievement. Our poets are such minor poets that the less said about them the better. Our dramatic literature is almost literally a farce when it is not an obscene joke. There has not been a new idea in architecture for four hundred years. Painting, sculpture and the arts and crafts look to the past for models. In everything of this kind we are imitators.

Over and over again men have faced human problems seriously and have accomplished good results. They have done so whenever in humility of heart they have realized that good work does not come of itself or by any inevitable law of progress, but by maintaining high ideas and ideals and working them out patiently. Whenever men have observed for themselves, drawn their conclusions patiently and without haste avoided theorizing and the hasty overconclusiveness so characteristic of youth, they have done things. Unfortunately as Europeans sometimes say in all kindliness of heart, "You Americans are so delightfully, refreshingly, poignantly, unconsciously young."

Even here in America, however, we must not think that this is the first time that good work has been done; and if on an occasion of this kind I should be tempted to go back for about a hundred years I would be able to show you some of the things that men were thinking and doing in this country that are anticipations of what we are inclined to think of as our most recent discoveries.

Probably the discovery that we have most reason to be proud of here in America in our time is that by which we know that yellow fever is not spread through the air, or by fomites, but is distributed by the mosquito. The other day I was looking over an old pamphlet which shows how much an observer of a hundred years ago here in America anticipated the most important portion of that discovery by some notable observations and really surprising experiments undertaken to demonstrate the value of his observations. I quote from "A Memoir on Contagion More Especially as It Respects the Yellow Fever," read in the convention of the Medical Chirurgical Faculty of Maryland, June 3, 1817, by Nathaniel Potter, M.D.:

---

* Address delivered, in part, at the annual banquet of the New Jersey State Medical Society at its annual meeting, June 11, 1913.

> During the prevalence of the yellow fever in this city in the years 1798, 1800 and 1802, we proposed and executed several experiments adapted to the question of contagion. On September 20, 1797, having been called on to visit a man in the act of dying, covered with perspirable matter, I applied a piece of muslin to his body till it became saturated, and in this condition, half an hour after, bound it around my head at bedtime. The fetor was nauseous in the extreme and occasioned a transient sensation of sickness of stomach; but, being languid from excessive exercise during the day, a profound sleep succeeded, from which I did not awake till 7 o'clock the next morning. I experienced no further inconvenience. In 1798, a few sporadick cases occurred in Baltimore. I inoculated myself with the perspirable matter that adhered to the skin of a patient in the last stage of yellow fever, but experienced no other effect than that which followed the punctures made in both arms. As the few cases that occurred this year assumed an uncommonly malignant aspect and many of them were accompanied by inguinal buboes, I availed myself of the occasion to inoculate myself with the matter formed by suppuration. On October 11, I inserted the matter in both arms, taken from the groin of Mr. Rector Lowe. A slight circumscribed redness appeared about twenty-four hours after the operation, and continued nearly stationary for four days. As no irritation proceeded from the punctured parts, and the rubefacience evidently declined on the fifth day, I concluded that the local appearances ought to have been ascribed to the puncture, or the acrimony of the pus.
>
> It has been suggested, that as the stomach is one of the principal organs invaded by inflammation in this disease, and as the black vomit would appear to be a secretion from that organ, that the disease might be reproduced by receiving this secretion into a healthy stomach. The experiments of Dr. Ffirth have decided that this hypothesis is visionary. He swallowed the black matter in the state it was ejected from the stomach, but with perfect immunity from disease. That this fluid cannot propagate the disease when brought into contact with the nerves of the skin, we have ascertained by reiterated experiments.

Dr. Potter argues that quarantine against yellow fever is useless and indeed absurd and as applied tyrannous. He is quite sure that the affection is carried through the air and cannot be kept out by any quarantine measure. It was not carried, however, by respiratory effluvia or fomites because patients suffering from yellow fever in hospitals did not communicate it to those near them. He argues from this that other infectious diseases also cannot be kept out by quarantine. He mentions particularly the plague and typhus fever. He protests vigorously against the imposition of quarantine and quotes the opinion of Jefferson who, on the strength of investigations made with regard to yellow fever, advised strongly against quarantine laws. The conclusions of course are too wide. Yellow fever spreads through the air, but by means of the very material mosquito and not through some more tenuous medium. Plague also spreads through the air, but by the medium of the flea. The air-borne diseases are a thing of the past in his sense of the word and yet he anticipated with regard to the one disease that was under his observation our most recent conclusion, and if he had not insisted on drawing his conclusions so widely would have been far in advance of his times. Generalizations nearly always fail in medicine.

It so happens that in the same bound volume of pamphlets at the Surgeon-General's Library, for it is to them that I owe the privilege of quoting this monograph, there is an announcement of Dr. David Hosack of New York of the "Course of Studies Designed for The Private Medical School Established in New York by David Hosack, M.D.," professor of the theory and practice of medicine and of midwifery and the diseases of women and children (New York, printed by Van Winkle, Wyelie & Co., 1816). In this, "to those students who have not received a liberal education, the following works are recommended previously to the commencement of their medical studies":

RHETORIC AND BELLES LETTRES

Murray's "Grammar" (large edition).
Blair's "Lectures on Rhetoric."
Duncan's "Logic."
Campbell's "Philosophy of Rhetoric."
Gregory's "Letters on Composition."
Kett's "Elements of Human Knowledge."
Barron's "Lectures on Belles Lettres and Logic."
Gerard on Genius.
Gerard on Taste.
Alison on Taste.

GEOGRAPHY

D'Anville's "Ancient Geography."
Pinkerton's "Modern Geography."
Morse's "American Geography."

HISTORY

Priestley's "Lectures on History."
Tyler's "Outlines of General History."
Anquetil's "Universal History."
Miller's "Retrospect of the Eighteenth Century."

NATURAL PHILOSOPHY

Helsham's "Lectures."
Gregory's "Economy of Nature."
Cavallo's "Natural Philosophy."
Imison's "School of Arts."
Ferguson's "Astronomy."

MORAL PHILOSOPHY

Beattie's "Elements of Moral Science."
Beattie's "Essay on Truth."
Paley's "Principles of Moral and Political Philosophy."

> It is also recommended to the young gentleman, unprepared by a collegiate course of study, to attend at least one course of lectures on mathematics and natural philosophy, as delivered in Columbia College, and to devote an hour daily to the Latin, Greek and French languages, under the direction of a private teacher.

Dr. Hosack evidently had an excellent appreciation of what was needed to prepare a man for medical studies and a high ideal of what the medical student ought to know. Now that with much trouble and pains we have climbed back to the point at which we ask a single year of college work in the majority of the schools, Dr. Hosack's standard of a century ago should be thoroughly recognized. His three years of medical studies includes a range of medical reading at least as wide as any recommended now, and he even suggested the medical journals with which students were to become familiar. Dr. Samuel W. Francis was associated with him in the teaching, and both of these men were physicians of broad and deep scholarship. They were not unpractical idealists, however, for the announcement declares that a medical student is not expected to become familiar with all of these books but to know how much is expected of him, to occupy every moment and "thus seeing a plan of study before him he will remit no honorable exertion to its successful acquisition. The works of these distinguished writers will have taught him to appreciate the dignity and importance of his profession and in the intervals of practice he will be induced to complete whatever of this outline he shall have left imperfect." The private library of Dr. Hosack was constantly open to the student for reference. When we realize how much medical education had descended in the next generation so that two ungraded terms of four months each were offered to men without any suggestion of preliminary education, it is hard to understand how such things come about.

When writing the history of the New York State Medical Society about ten years ago I called attention to the fact that the essays which were awarded prizes by the Medical Society of the State of New York in 1825 and immediately succeeding years were such as might well win prizes at the present time. It would be easy to think that prize essays written at that time would have comparatively little interest except possibly to the historian and still less of practical value. The surprise, therefore, is to find that the subjects chosen are treated nearly from the same point of view as we would treat them at present and that, indeed, the writers anticipate many of the points of view that we are much inclined to think of as quite modern. The first prize given was awarded in 1825 for an essay by Dr. Andrew Hammersley.[1]

Dr. Hammersley begins by discussing and rejecting the popular idea that consumption is due to cold, or that indeed cold is a source of the many ills that are attributed to it. When we recall that even at the present time this is a popularly accepted notion, Dr. Hammersley's paragraphs are interesting.

> Popular prejudice has all along conduced to the belief that sudden exposure to cold, when the body is heated, would be attended with extreme hazard, and this alone has been accounted one of the fruitful sources of disease. The researches, however, of modern experimenters has tended in no small degree to qualify such conclusions.
>
> Those of Dr. George Fordyce and Sir Charles Blagden, familiar to every person, are among the most important in evincing that exposure to a high degree of cold, after violent heat, is unattended with danger to the constitution. This fact is likewise confirmed by the mode in which the practice of bathing is conducted in Russia, and in several other countries, the inhabitants of which, to heighten the luxury and add to the refreshment of immersion in heated baths, or long exposure to vapor of high temperature, immediately plunge into contiguous cold baths, or run into the open air and without the smallest covering on their bodies roll themselves in snow. In considering a fact of this kind, there are two particular circumstances to be noticed, to wit, the acquired vigor of the subject to whom the practice appertains and the inherent powers of reaction possessed by the animal economy. The hardy Russian, whose every fiber is made tense by the severity of his climate, suffers no harm from such practices, as the principle possessed by the system just adverted to is put in action in a frame capable of enduring the influence of the opposite medium to which it is exposed.

On the other hand, Dr. Hammersley is very certain that dust has a great deal to do with the development of tuberculosis, and he points out that it is particularly workmen whose occupations keep them in a dust-laden atmosphere and especially whose trades involve the making of much dust who are most likely to suffer from it. He says:

> Among the various artisans Dr. Cullen has enumerated stone-cutters, millers and flax-dressers as particularly subject to attacks of this disease. "But the most striking example," says another writer, "of this species of injury is afforded by one of the processes of the needle manufactory; it is that of dry grinding by which the needles are pointed; the persons employed in this labor are universally affected in a short time with the symptoms of approaching consumption. They go on coughing till they either spit blood or a thick substance having the appearance of matter. They decline in flesh and strength and scarcely ever survive to the fortieth year. Dr. Kirkland observes that scythe-grinders are subject to a disease of the lungs from particles of sand mixed with iron dust (getting into the lungs and setting up an infection) which among themselves they call the grinder's rot." It is moreover asserted on good authority that the filers of London die almost universally at a very early period of a similar disease. Certain other occupations are very properly thought to bestow an immunity from this extensive malady. Such are those of boatmen, watermen, sailors and gardeners. Certain animals of the lower order are moreover supposed to enjoy a marked exemption, as dogs; while on the other hand, cows, it is reported, are particularly subject to it.

In the last sentences he dwells on the fact that people who live in the outdoor air have an immunity to the disease to a considerable extent, and he discusses animal tuberculosis much in the same way that we were discussing it after Koch's announcement with regard to bovine tuberculosis at the beginning of the twentieth century.

The second prize essay was "The History, Causes and Treatment of Typhus Fever," by Dr. Alfred Y. Magill of Winchester, Va., and may be found in the Transactions of the Medical Society of New York for 1834-5. It might be thought that whatever there would be of interest in this essay would surely be contained in the discussion of the causes or perhaps of the history of the disease. As a matter of fact, it is under treatment that the part of the essay which is of enduring interest occurs. We think of the cold-water treatment of typhoid fever as modern, yet here is a thorough discussion of it in a prize essay nearly a century ago in which the writer confirms most of his conclusions from authorities who wrote more than a century ago.

Perhaps even more interesting than the use of cold water for the reduction of fever is the suggestion that when water was not available or was contra-indicated for any reason the patient should be put in the cold air until a definite reduction of temperature was secured. The opening of a window directly in the face of a cold northwest wind would remind one of some of the venturesome proceedings of physicians especially in hospital work in recent years. Dr. Magill said:

> No one can peruse Dr. Currie's recent experience in this matter without being convinced that cold water when properly applied is a most important remedy in case of fever. Its utility is not confined to typhus; it is equally serviceable in all fevers attended with increase of heat and arterial action. Its effect on the pulse is astonishing in many cases. We have often known the mere bathing of the hands and arms of a febrile patient to reduce the action of the pulse from ten to fifteen beats in the minute, and if this partial application of cold water has such an effect on the action of the heart, how

---

[1] Hammersley, Andrew: Dissertation on the Remote and Proximate Causes of Phthisis Pulmonalis, Tr. Med. Soc. New York, 1834-1835, ii.

[illegible] Library
[illegible] Medical College

> much greater must be the effect of a cold bath. We have many instances on record of its calming at once the most furious delirium; persons in such a situation have often jumped overboard from a vessel into the sea and been taken up perfectly calm and rational and with an almost complete extinguishment of the fever. With the many strong instances recorded in various works of its remarkable efficacy in curing fever, it is justly a matter of surprise that physicians so seldom call its great powers into requisition. It exercises a more immediate control over the action of the heart than blood-letting. Dr. Currie mentions a striking instance of the effects of cool air in reducing the pulse. "In the month of May, 1801," he says, "I was desired to see a patient ill of fever in Sparling Street. I found him in the tenth or eleventh day of the fever, delirious and restless; the surface of the body dry, and his heat 104 F. The room was close and I desired the only window in it opened. The wind from the northwest blew directly into this window, and the bed being situated between it and the chimney, a pretty brisk stream of air passed over it. The patient had just thrown off a considerable part of his bedclothes and was exposed naked to the breeze. I sat by him with my finger on his pulse watching the effect. In a little time the pulse fell from 120 to 114 in the minute; he became more tranquil and soon afterward he sank into a quiet sleep, in which he remained when the water for effusion was prepared; of course we did not disturb him; he remained exposed to this cold air until morning when his pulse was found to be about 100 and his heat 101."

It is interesting to note that though the clinical thermometer was not often used for half a century after the date of this observation (indeed, Keen says that surgeons during the Civil War estimated fever by touch and not by the thermometer), this English observer quoted by an American prize essayist was studying his fever cases very carefully with the aid of a Fahrenheit thermometer in the early years of the nineteenth century.

While all patients suffering with fever were to have their temperature reduced by some direct use of cold air or water, he did not think that patients should be subjected to cold applications indiscriminately but advised the selection of patients and suggested certain contra-indications to this method of treatment. The whole discussion is interestingly up-to-date in many ways and deserves a place in our literature. He said:

> But cold water is by no means to be used indiscriminately in every case of fever; neither is it to be used in all stages of any fever; the rules which Currie has laid down on this subject are excellent and cannot be followed too closely. If we obey strictly his directions, we will always be prevented from misapplying or doing injury to its use. He gives separate rules for the external and internal use of cold water, but as its effect, except in degree, is the same when used either way, one set of rules will answer as a guide for both. His first general rule is that "it may be used (either internally or externally) when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration." We will now give the substance of the particular rules he has laid down on this subject: 1. Cold water is not to be used either internally or externally in the cold stage of the paroxysm of the fever, however urgent the thirst; taken at such times it increases the chilliness and produces great weakness of the pulse, and if used to any extent might cause the death of the patient. 2. When the hot stage is fairly formed and the surface is dry and burning, cold water may be used both ways with the utmost freedom; frequent draughts of cold liquid and its external application, under such circumstances, are highly grateful; they diminish very much the heat of the body and lessen considerably the volume and frequency of the pulse. 3. It is also necessary to abstain from the use of cold water when the body is under profuse perspiration, and this caution is more important in proportion to the continuance of this perspiration."

The third prize essay was on iodin, by Samuel J. Hobson,[2] M.D., a member of The Philadelphia Medical Society. Iodin has been used for many and varied ailments since Hobson wrote his essay, but there are no affections for which it was recommended in the centuries since, so far as I can find, that are not mentioned by the Philadelphia prize essayist about the end of the first quarter of the nineteenth century. All the glandular enlargements including the mamma, the liver, the spleen, the testicles, scrofula, dysenteric tuberculosis, bone and every other form of tuberculosis were all to be benefited by iodin. It is well worth the while reading that essay on iodin and comparing it with some of our text-books of materia medica and therapeutics which still carry wonderful indications of the most varied character for iodin.

The fourth prize essay was by Dr. James Conquest Cross and was on the subject of delirium tremens. It will interest the modern physician to know, though I am not sure that the detail has any historical value, that the prize winner, Dr. Cross, was from Kentucky and knew his subject very well. His history of the disease, its first description as an independent entity in 1801 and other details are of interest. He insists on individualization of the cases, deprecates the overuse of opium and discusses venesection and various antiphlogistic methods of treatment.

The fifth prize essay that has been preserved is that of Dr. Benjamin W. McCready of New York, who wrote on The Influence of Trades, Professions and Occupations in the United States, in the Production of Disease.[3] His was the prize essay for the year 1837. As I have already stated,[4] and shall repeat here, this was the first time so far as I know, that the prize was awarded to a New York man. Kentucky, Virginia and Pennsylvania had been represented in the list of prize-winners, and it is very evident that the prizes were awarded entirely for the merit of the essays and not for any personal or partial reasons. In this fifth essay the question of the overcrowding in the tenement house districts of New York City is discussed in the same terms that would have been used fifteen years ago on the same subject. The reasons for ill health in the tenement house districts are thus stated:

> In other cases the cupidity of landlords has tempted them to build up narrow alleys with small wooden tenements which, costing but little, and being let to numerous families, yield immense profits. The alley is often not more than 6 feet wide, paved with round stones and with very insufficient means for draining off the water. It is not uncommon in such situations to find one or two of the apartments in each house entirely underground. Can we wonder if in such a state of things we find moral as well as physical disease, vice as well as sickness? Can we expect men who live thus to be orderly and sober, or women to be cleanly and domestic? In such situations, during the summer months, diarrhea and dysentery are rife, and among children fatal. Scrofula, in some of its protean forms, is frequently met with and they form the lurking places where small-pox, measles and scarlet fever lie covered under the ashes, or when circumstances are favorable, blaze up into sudden fury.

---

[2] Hobson, Samuel J.: The History, Preparation and Therapeutic Uses of Iodin.

[3] Transactions of the Med. Soc. of N. Y., 1837.

[4] Walsh, James J.: The Wisdom of Our Grandfathers, History of the Medical Society of the State of New York, Chapter viii, Part 2; New York State Jour. Med., February, 1907.

At the end of Dr. McCready's essay there is a rather striking set of passages in which he discusses the evils of the quack and especially the patent medicine vender, and suggests the reasons for the popularity of their products. He has caught the essence of the idea in the declaration that the present popular errors in medicine are always the result of previous supposed knowledge among physicians themselves. Dr. McCready's remedy for this unfortunate state of affairs would be the spread of real knowledge. In the seventy-five years that have elapsed since the writing of this many improvements and advances in education have come, yet his words retain their forcefulness and application.

> That the present errors of the vulgar were formerly the themes of philosophers, is an old and trite observation. Most of the vague and unfounded notions of the public concerning the nature and treatment of diseases, which embarrass the young practitioner on his entrance into practice, were once the cherished doctrines of the wise and learned. Can we do nothing to correct the evil our predecessors have occasioned? Can we not substitute truth for falsehood, facts and reasoning founded on facts, for idle notions, and injurious hypothesis? I would not wish to instruct the community in a knowledge of the symptoms and treatment of diseases—that were impossible; but I would wish to make a knowledge of the laws and functions of the living body a necessary part of a liberal education, and to communicate to all classes so much information as would enable them to educate their children and regulate their diet, clothing, exercise and habitations.

Dr. McCready has also an excellent review of quack medicines which might apply to present conditions; and he thought the newspaper press as responsible for it then as we do now. The evil results to be anticipated from the abuse of medicines are just those that medical writers of the present day insist on.

> There is an evil, which has of late years become of excessive magnitude, and which is daily increasing—the consumption of quack medicines. Aided by the immense circulation of a cheap, press, many of these nostrums have obtained a sale that exceeds belief. Few patients among the lower classes now apply to a physician, who have not previously aggravated their complaints by swallowing numbers of these pretended specifics, and a late resident-physician of the city hospital has informed me that he has met with many cases of derangement and irritation of the mucous membrane of the stomach and bowels, caused solely by the drastic articles which enter into their composition. Formed in most instances of irritating ingredients and directed to be taken in immense doses, and as infallible remedies in all cases, the mischief which they do is incalculable, and unless some stop be put to the evil by law or by an enlightened public opinion, it will soon claim an unenviable preeminence as a cause of public ill health.

Surprising as it may seem to us because of the feeling that has been so commonly cherished of the wonderful advance that has been made in recent years in medicine, what we find when we know sufficient of the details of the history of medicine is that even here in this country many of the ideas that we are likely to think of as most recent were anticipated long ago, and discussed very sensibly by some of our grandfathers in medicine, though their ideas seem to have affected only a few of the thinking physicians in practice at the time. After all, it has probably always been true in the history of medicine that the ordinary practitioner of medicine was using conventional or routine remedies and modes of treatment and expecting much, but seldom realizing all that was being accomplished around him. Even in our own time this is probably much truer than is thought and indicates what possibilities for advance there is in medical practice. Even now the knowledge that we have with regard to cancer and its early diagnosis, as well as the early diagnosis of tuberculosis, is neglected to such an extent that it is only when patients are in advanced stages that an absolute diagnosis is made, and then their best chance for recovery is already gone.

Let us not forget that practically all our diagnosis of lung diseases was outlined in Laennec's book of auscultation nearly a hundred years ago, and that very little has been added to that. Even now, however, there are many physicians who do not apply this great discovery of Laennec in anything like the scientific way that it should be applied.

Instead of lying back on our oars then and thinking that the tide of progress will carry us with it inevitably, it is well for us to recall that at any time in the history of medicine thoughtful physicians have anticipated discoveries that seemed novel long after their time, and that indeed at any time men who have approached clinical problems seriously have done great good to patients in spite of any supposed lack of knowledge in their time. It is the thinking physician occupied with his patients and not with cases who represents the most important factor in every generation of medical history, and there is never anything absurd about that. After all, it is not surprising that physicians should have proved capable of solving so many problems so well in the past, for man has at all times solved his problems nearly as well as at any other time in the history of man. Our philosophy, our literature, our poetry, our architecture, our painting, our sculpture is nearly all old, and what is best is of the olden time. Why should not this be true with regard to medicine, at least to the extent that would make us realize that we have a glorious history of medicine, not for one or two generations but for many centuries and even for more than a century right here in America.

110 West Seventy-Fourth Street.

AN ETIOLOGIC STUDY OF HODGKIN'S DISEASE

PRELIMINARY NOTE *

C. H. BUNTING, M.D., and J. L. YATES, M.D.
MADISON, WIS.

In a recent publication[1] we have described a diphtheroid organism obtained in pure culture in four cases of Hodgkin's disease, and observed in three others. In order to determine the possibility of an etiologic relationship between this organism and the disease, the *Macacus rhesus* monkey has been used for inoculation experiments. While the experiments have been under way but a comparatively short time, histologic examination of a portion of a group of enlarged lymph-nodes, removed for transplantation to another animal, is of so encouraging a nature that a report seems justified. While we cannot yet claim that by the inoculation of the organism in question we have produced Hodgkin's disease (meaning the firm establishment of the organism in the animal and a continued and progressive enlargement of the general lymphadenoid tissue), we can say, that by repeated

---

* From the Pathological Laboratory of the University of Wisconsin.

* This work has been aided by a grant from the Rockefeller Institute of Medical Research.

[1] Bunting, C. H., and Yates, J. L.: Culture Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236.

injections we have produced progressive enlargement of a single group of lymph-nodes which at the time of writing show histologic changes identical with those seen in the lymph-nodes of human beings, where the disease is of the same duration.

The culture used in inoculating this animal was obtained from a patient in the Mayo Clinic, Case 2 of our report, and is designated in the laboratory as Subculture X. F. A. In some of the later inoculations this was combined with a subculture recovered in pure condition from an abscess which followed inoculation of Monkey 3. This is the only case in which an abscess has followed inoculation of any of the animals. This culture had survived forty-eight hours in the monkey and it was thought might have acquired some tolerance. It is designated as Subculture X. F. A. M.

The record of Monkey 1, from which the tissue was removed, is as follows:

Monkey 1.—Rhesus, female, arrived from New York April 11, 1913.

April 15: Temperature 38.6 C. Red blood-cells, 6,680,000; white blood-cells, 22,300. Lymph-nodes in both groins somewhat enlarged. Two lymph-nodes palpable low down in right axilla, also in left axilla.

April 19: Temperature 38.7 C. Injection of the twenty-four-hour growth of culture X. F. A. on Loeffler's serum, diluted with normal salt solution, into right axilla.

April 21: Temperature 39.5 C. White blood-cells, 17,600.

April 22: Temperature 39 C. Two axillary lymph-nodes on right side much enlarged, apparently about 1 cm. in diameter.

LEUKOCYTE COUNTS IN THE MONKEY

Date	Total Count	N.	E.	B.	S. L.	L. L.	L. M.	Tr.
April 15	22,300	51.0	2.4	0.2	40.8	2.8	0.4	2.4
April 21	17,600	48.4	1.0	0.8	38.2	5.2	0.6	5.8
April 24	14,000	28.2	1.6	1.2	56.0	5.2	0.6	7.2
March 1	31,250	62.0	1.8	0.4	27.2	2.2	5.4	6.0
May 23	20,000	42.8	2.2	0.8	46.0	2.2	1.0	5.0
May 28	*	34.4	5.0	0.0	49.6	1.8	0.4	8.8
June 11	14,000	29.8	5.4	0.2	54.8	4.6	0.2	7.0
June 30	*	50.0	1.8	0.0	38.0	2.0	0.2	8.0
July 1	*	51.8	2.2	0.2	37.2	2.0	0.2	6.4
July 2	*	48.6	3.8	0.2	36.2	3.6	0.4	7.2
July 3	*	51.2	1.6	0.2	35.0	3.2	0.2	8.6
July 5	24,000	52.8	2.4	0.0	32.0	4.6	0.4	7.8

April 24: Temperature 38 C. White blood-cells, 14,000. Lymph-nodes in right axilla still enlarged.

April 26, 10 a. m.: Temperature 38 C. Von Pirquet test made on left arm.

April 28: There had been no reaction to von Pirquet test. Lymph-nodes in right axilla still enlarged.

May 1: Temperature 39 C. White blood-cells, 31,250. Lymph-nodes of right axilla still enlarged.

May 23: White blood-cells, 20,000.

May 24: Inguinal lymph-nodes somewhat enlarged. Moderate enlargement in left axilla. Two large lymph-nodes in right axilla. One twenty-four-hour slant on Loeffler's serum of Culture X. F. A. injected in right axilla.

May 27: Temperature 39 C. Marked induration in right axilla, involving enlarged lymph-nodes. The whole mass is about 2 cm. in diameter. Some oozing of serum along needle track. A smear from this shows the diphtheroid organism.

June 7: Marked enlargement of right axillary lymph-nodes. One twenty-four-hour slant of Culture X. F. A. injected into right axilla.

June 9: Marked induration in right axilla.

June 11: Induration lessening. Temperature 38.6 C. White blood-cells, 14,000.

June 21: Two twenty-four hour slants of X. F. A. injected into right axilla.

June 30: Lymph-nodes in right axilla large, surrounded by indurated tissue. Injection into right axilla of one twenty-four slant of X. F. A. and one of X. F. A. M.

July 2: Large lobulated indurated mass, roughly 3 by 3 cm. in right axilla. No leakage along needle track. No sign of softening or of abscess formation.

July 5: White blood-cells, 24,000. Induration of axilla marked, apparently increasing. Lymph-nodes involved, swollen and firm.

July 6: Portion of group of lymph-nodes in axilla removed under ether anesthesia.

The excised tissue consisted of a group of four lymph-nodes united by fairly firm moist connective tissue. Two of the lymph-nodes were approximately 15 by 7 mm., each, in size, while the other two were each just under 5 mm. in diameter. Portions of the tissue were fixed in formaldehyd solution and sectioned.

Histologically, the tissue between the lymph-nodes was found to consist largely of recently-formed connective tissue, with abundant fibroblasts. There is some polymorphonuclear infiltration.

The changes in the lymph-nodes are quite similar so that a description of one will suffice. There is no definite capsular thickening. The internal structure of the lymph-node is not yet lost, but is to a considerable extent obscured, owing to a loss of distinctness in the borders between the sinuses and the medullary cords and peripheral nodules. The germinal centers are large, and show numerous mitotic figures, yet there is a relatively narrow collar of lymphocytes about the center, but instead, the center shows many of the so-called large endothelial cells and they are present in numbers among the peripheral lymphocytes. The sinuses of the lymph-nodes are filled with cells of the endothelial type, and they are also scattered generally through the lymph-nodes in the lymph-cords. Mitotic figures are numerous in scattered cells of this type. Many of these cells have large vesicular nuclei with prominent nucleoli, and a nuclear diameter twice that of the nucleus of an ordinary endothelial cell. Some of the nuclei are lobed and some are double. The protoplasm is relatively scanty. These cells distinctly merit the designation of endothelial giant cells.

In addition to these changes there is, in the more central parts of the lymph-node, an increase in fibroblasts and a beginning fine sclerosis. Eosinophil cells are numerous throughout the lymph-nodes occurring singly and in groups. There is slight hyaline degeneration in places.

We have thus produced in the lymph-nodes of the monkey, a chronic lymphadenitis with atypical proliferation of the endothelial cells, a beginning proliferation of the stroma tissue, and a well-marked eosinophilic infiltration; also a periglandular sclerosis. Clinically, the animal's blood has shown an absence of polymorphonuclear leukocytosis after injection of the organism. An increasing percentage of mononuclear elements is found, particularly of the transitionals, an increase in eosinophils following a primary fall, and an early increase in basophils, all of which are characteristic of the early stages in Hodgkin's disease.[2] The blood-plates have also been numerous and large forms have been present.

With the picture in the lymph-nodes so similar to that of the early stage of Hodgkin's disease in the human being, and so different from an example of subacute lymphadenitis in the mesenteric lymph-nodes of a monkey which died of dysentery, and with the blood-picture showing the changes of human patients with the disease, we feel more assured of the etiologic relationship of the organism—which we have designated *Corynebacterium hodgkini*—to the disease.

---

[2] Bunting, C. H.: Bull. Johns Hopkins Hosp., 1911, xxii, 369.

Diseases Without a Morbid Anatomy.—Now diseases without a morbid anatomy are notoriously unsatisfactory to deal with, and are apt to be classed offhand as "functional," from which it is but a short step to speak of them as due to a neurosis.—Robert Hutchison in *Clin. Jour.*

WHO IS RESPONSIBLE?

THE POSITION OF CHEMISTRY IN MEDICAL EDUCATION

J. H. LONG, M.S., Sc.D.
Professor of Chemistry Northwestern University Medical School
CHICAGO

In an editorial in a comparatively recent issue of The Journal[1] the question is asked, Who is responsible for the lithia water fraud? This is but a special and relatively unimportant phase of an old problem, the responsibility for crude beliefs and medical frauds in general, but it seems a good text to point a lesson.

Faith in the superior efficiency of lithium salts as uric acid "solvents" dates back fifty years or more, and had its origin in the wrong interpretation of a simple chemical fact, but the absurdity of the claim has been many times shown, leaving quite out of consideration the well-known fact that most so-called lithia waters contain such minute traces of the element that the spectroscope is required for their detection. The scientific fallacy in the solvent doctrine was long since shown by physiologists studying the problem from the standpoint of the dissociation theory and the mass action laws. His and Paul,[2] especially, have contributed to the subject in their study of the solubility of uric acid and its salts, and their conclusions have passed into the general literature. Why are they and others not recognized? Who is responsible? The editorial in question answers that the responsibility rests with the medical profession, and refers the trouble back to the lack of proper instruction in pharmacology in the medical schools.

This explanation is only in a measure sufficient. Pharmacology has made wonderful advances in the last two decades and the methods of teaching the subject have correspondingly changed. I am inclined to think that much of this instruction is beyond the capacity of the student to follow, and this leads to the recognition of the real difficulty. The editorial truly says that in the understanding of the nature and action of drugs the student is often no better off than were the graduates of twenty or thirty years ago, but it does not go far enough in explaining the reason for this.

The medical sciences which have made the most notable advance in the last four decades are simply outgrowths of the new chemistry, or perhaps of the old chemistry plus a few new methods. This is emphatically true of pharmacology and the group of sciences based on bacteriology. I recall distinctly the first series of lectures given in the old Chicago Medical College (now Northwestern University Medical School) by Henry Gradle on the germ theory of disease. This was in 1882, and was probably the first formal presentation of the subject in the United States. The lectures were published in the following year and the book is still interesting reading. But how was it received then? Often with amusement, and it has taken medical men a long time to recognize that bacteriology is not, as far as their interests are concerned, a branch of morphology. Gradle and his "bugs" were often the subject of jokes, and the "bugs" were assumed to have about the same importance in the human body that other "bugs" have in injuring a tree by boring into it.

That bacteria are chemical rather than mechanical agents, and agents of great activity, is, of course, an elementary truth known to all real bacteriologists. In fact, their importance is almost solely from the chemical standpoint, and much of the new pathology has been reconstructed to accord with this view. The investigator knows all this, but how about the student? It must be confessed that the latter is often poorly equipped to follow the chemical side of bacteriology, which is the only side which offers any tangible explanation of the phenomena of importance to the physician. His chemical training is generally inadequate to enable him to get the full benefit from his studies in bacteriology.

If chemistry is fundamentally important in bacteriology it is no less so in pharmacology. The days of the morphologic study of crude drugs in the medical school (and the school of pharmacy, too) is rapidly passing, and fortunately so. Most of these things had little or no importance in medicine, but think of the time wasted on calamus and sarsaparilla, on cinchona bark and a hundred other things, the external characteristics of which gave no clue to their practical medicinal activity. The active principles of these drugs (when they have any value at all), or chemical synthetics, have taken their places; and here a knowledge of organic chemistry must help the student over some of his difficulties.

But just at this point the greatest mistake is sometimes made. How much of the instruction in chemistry of the medical school consists in learning formulas! I have known students to memorize the formulas for strychnin, quinin, morphin, albumin (!) and other bodies, thinking they were learning chemistry—students who at the same time were ignorant of the fundamental principles of combining proportions, mass action, valence or the simpler facts of organic synthesis.

As to what is the proper kind of chemistry for the medical school there have been various opinions, but I have maintained for years that, whatever the student may study in this science after entering the medical school, it is absolutely essential that he must be well grounded in elementary chemical theory, without which much of the work in organic chemistry, even, must remain meaningless. Without this foundation students are lame and remain helpless in all the subsequent work depending on chemistry. It is largely because of lack of acquaintance with the simpler principles that medical men often grapple with chemical problems which are quite beyond their power of solution. A man who is skilled in surgery is often able to duplicate a difficult operation from the knowledge gained by reading, but it does not follow that the same man can conduct a difficult chemical investigation in the same way. Yet such things are often attempted. There seems to be little appreciation of the length of time required for laying the chemical foundation.

A few years ago most of our leading medical schools adopted an entrance requirement which included elementary chemistry. Under this plan the work in chemistry in the medical school begins with organic, or, in some instances, with physiologic chemistry. This change was hailed as a great advance, but in practice it is somewhat disappointing. Students now bring to the medical school "credits" for chemistry, taken usually as an elective in some college. In theory this elective chemistry should be in advance of that usually given in the same field in the professional school, but as an actual fact this is often, perhaps usually, not the case. It is generally admitted that students in college do not work as hard as they did twenty or thirty years ago. College courses are now every-day affairs. I believe it is true that the average student carries away with him a smaller knowledge of chemistry than was the case with the boys who were obliged to take the work at the earlier period, and this in spite of the vastly improved equipment of our laboratories. The elective system may be partly responsible for the change. Easy electives are fine things to make up "units" or "semester" hours. The trouble is also in part due to the fact that many of our college teachers, perhaps naturally from a sort of necessity, are far more interested in their researches than they are in the hard work of elementary instruction. There is plenty of "professoring," but much less good teaching.

---

[1] May 17, 1913, p. 1544.

[2] His and Paul: Ztschr. f. physiol. Chem., 1900, xxxi, 1464; also Pharm. Ztg. at about the same date.

So unsatisfactory is the present scheme that some of our medical schools are finding it necessary to restore part of the instruction in elementary chemistry dropped when the higher requirements were inaugurated some years ago. I believe all schools will be forced to do it to secure a better preparation in the foundation principles. All students entering the medical school should be required to repeat in a recitation course part of their elementary chemistry and cover such topics as valence, the gas laws, general reactions, mass action, vapor density, cryoscopy and the solution of a great variety of problems.

It is of course urged that the student is already overworked and cannot take on more. There is much truth in this and he should not take on more, but he can drop something to take work which is fundamentally far more necessary and important. I think it can be said without question that a very appreciable part of the time spent on anatomy might well be spent on something else which in the evolution of the medical school will be far more in demand. The foundation disciplines for the study of medicine are anatomy and chemistry, and of these anatomy is by far the older. In fact, there were great anatomists five hundred years ago, and the historical position of anatomy in the medical school has been maintained down to the present time. I, of course, do not question the supreme importance of anatomy as pure science and I have the fullest appreciation of and admiration for the brilliant work of investigators in this line, but a large part of this morphologic science has about as much direct bearing on questions of internal medicine as has modern astronomy, which is an outgrowth, through centuries, of astrology, the sister science of anatomy in the early Italian schools. The time given to anatomy in our medical schools is relatively, and possibly absolutely, much in excess of what is necessary. The superior importance of this branch has been preached so long that many people have come to believe it. But the excessive time given to anatomy is undoubtedly one of the weak spots in the present system.

Courses in anatomy are always far more popular than courses in chemistry. (The dazzling allurements of surgery may be at the bottom of this.) The work is comparatively easy in the one case and difficult in the other. But as the supreme importance is commensurate with the difficulty, the science which is at the foundation of so many other medical sciences must be learned, even if it be necessary to reverse the present absurd time relations of the two disciplines in our first-year and second-year curriculums. In my early teaching experience I was more than once given to understand, and sometimes by students as well as by colleagues, that about all the chemistry a medical man needed was enough to make a sugar or an albumin test. It would seem so. Chemistry was for years but a tolerated study. The men who held this view of the place of chemistry in the medical course, however, were the men who made the continued success of the proprietary medicine vender possible. Men with this half knowledge or no knowledge of chemistry have always been an easy mark for the glib-tongued medicine factory agent who has something to sell.

I come back to the question, Who is responsible? I say that the medical school is responsible in neglecting a proper training in that science which is absolutely necessary to the understanding of pharmacology as well as bacteriology or physiology. There must be a return to a better study of pharmacology, to a study of the things which have value in the cure of disease, but this study must be preceded by a much profounder study of the real foundation science bearing on problems of internal medicine. The chemistry of the medical school should be thorough enough to leave no excuse for a therapeutic nihilism on the one hand, or for the prescribing of therapeutic impossibilities on the other.

2421 Dearborn Street.

VACCINATION WITH MIXED CULTURES FROM THE NOSE IN HAY-FEVER

CHARLES B. MORREY
Professor of Bacteriology, Ohio State University
COLUMBUS, OHIO

About four years ago I reported good results in treating ordinary colds with vaccines,[1] and I have successfully used the method as occasion arose since that time. This suggested a similar procedure with regard to hay-fever. Opportunity did not arise until the summers of 1911 and 1912, as detailed below. Since I am not in regular practice, only such persons as came voluntarily to be "experimented on" were available. Vaccines were prepared in the following manner:

Swabs similar to diphtheria swabs are rubbed over the nasal mucosa after the patient has first thoroughly blown the nose to remove dust and possible saphrophytes. The swabs were rubbed over the surface of large 19 mm. agar-slant tubes. Two slants are inoculated to avoid possible loss or lack of material. The tubes are incubated twenty-four hours. If little growth appears it is spread over the surface and incubated twenty-four hours longer. When, in either case, there is a heavy growth, this is rubbed off in normal salt solution, the growth from the two tubes is combined and the whole is diluted to 9 c.c. with normal saline. To this 1 c.c. of 5 per cent. phenol (carbolic acid) is added so that the material will contain 0.5 per cent. phenol when finished. The tubes are then heated in a water-bath at 60 C. (140 F.) for one hour to kill the organisms. The vaccine is now ready for use. The addition of the phenol before heating enables one to use lower temperatures for heating and thus diminishes the possibility of destroying the antigens in the organisms while still insuring the killing of the bacteria.

It will be noted below that the dosage is given in cubic centimeters or fractions instead of in numbers. I have been endeavoring for the past four years to find some method to determine the dose of a vaccine and have come to the conclusion that this is possible only from the results of the first vaccination. Organisms vary so much in virulence and patients so much in tolerance that dosage is a purely individual matter in each instance. Consequently vaccines are prepared of approximately the same strength and an amount is given the patient which he can apparently tolerate without inconvenience. Measurement in fractions of a cubic centimeter is the ordinary way of regulating the dose after the first in practice in any event, that is, when the vaccines are standardized as to numbers.

---

[1] Vaccine Therapy of Colds, Correspondence, The Journal A. M. A., May 1, 1909, p. 1439.

Case 1.—The patient, a university graduate and a high-school teacher, aged 23, had had "hay-fever" regularly the past five or six years. It began usually about the end of July, and lasted until two or three weeks after a heavy frost. July 30, 1911, 1.6 c.c. of vaccine were injected. No local or constitutional effect from the injection was noted. August 6 the patient reported that he *had not sneezed since the vaccination, and nasal discharge had been practically absent;* 1 c.c. of the original vaccine was injected as a second dose. During the following week the patient went on duty from 6 a. m. until 11 a. m. daily, as ticket-seller at the local driving park. The air in the ticket-booth was foul from its incidental use as a privy, and the food furnished was so poor that it could not be eaten, so that the patient said he "lived on watermelon and buttermilk." He had attacks of sneezing each morning, though little during the day. August 14, only 0.2 c.c. of a new vaccine was injected but with no noticeable effect. August 18, 0.6 c.c. of the same vaccine used which had a slight effect. August 22, 1 c.c. was injected by the patient's uncle, a physician, which gave relief for twenty-four hours only. August 28, 1 c.c. of a new vaccine was given and the patient removed to a city on Lake Erie to begin high-school work. He was convinced that he had been better than for any of the past five years. He reported in the fall of 1912 that for the past summer (not under treatment) his attacks had been scarcely one third as bad as normal.

Case 2.—The patient, a university professor, had typical "hay-fever" for the past five or six years. It began usually about the middle of August, though this year he had been sneezing since July 1. Aug. 10, 1911, 1.3 c.c. of vaccine was injected. The dose was too large, and the reaction was severe and kept the patient in bed until the next afternoon. He did not sneeze once until the 13th. August 14, he reported that he had sneezed five or six times on the 13th and 14th, but "nose had not run since the 10th." August 16, a second vaccine was made and only 0.3 c.c. injected; the effect was only slight, and 0.4 c.c. was given August 18. From this time on the patient had so little trouble that he did not consider further vaccination necessary. He "enjoyed being in the dust where buildings were being razed [he is an architect], and sitting among the vines on his porch," which had been impossible before owing to the paroxysms. During the summer of 1912, he did not suffer enough from hay-fever to believe it worth while to be vaccinated.

Case 3.—The patient, an agent, had hay-fever for twelve years. For the past five years he had gone to Duluth to remain from August to December to escape, though in 1911 he had a slight attack while there. Aug. 12, 1912, 0.7 c.c. was given with practically no results. August 16, 1.2 c.c. was given with practically no results up to August 27, when 1.2 c.c. of a new vaccine was given. August 31, the patient reported a good effect to date and little sneezing. September 12, 1 c.c. was given. The patient reported no hay-fever since the last vaccine. No further vaccination was given. October 12, he reported that he had no more hay-fever.

Case 4.—The patient, a lawyer, had had hay-fever for eighteen years, and asthma the past few years with it. Aug. 13, 1912, 0.8 c.c. was given with no reaction, and no sneezing up to August 16, when the second dose, 1.2 c.c., was given. August 30, the patient reported great relief the past two weeks, with practically no hay-fever. There was no effect on the asthma. August 31, 1 c.c. of new vaccine was given and none since, as he has had no hay-fever.

Case 5.—The patient, a business man, had had hay-fever for years. Aug. 25, 1912, 0.4 c.c., a small preliminary dose, was given, with slight effect. August 29, 1 + c.c. was given. The reaction was severe, so that the patient felt "out of sorts" for about two days; but the nose cleared up and all symptoms disappeared, and the patient had no further hay-fever, as he reported in November.

Case 6.—The patient, a lumber-dealer, had hay-fever for five or six years. Aug. 31, 1912, 1 c.c. was given and the patient left the city. Vaccine was sent to his physician and he administered the second dose, September 6. I have only the patient's statements as to the effects. "The first vaccination (Saturday, August 31) was followed by 2 degrees of fever and a chill that evening, a slight one the following evening. Felt like taking the grip. Feverish Sunday, but better Monday. Next three days felt about like one with a cold. Second vaccination followed by much the same effects, but not so pronounced. About like one with a cold the next week, sneezed a little and some nasal discharge, but not the 'hot kind.' Felt better than since had hay-fever, about six years."

Case 7.—The patient, a bookseller, had had hay-fever for thirty-three years. Sept. 3, 1912, 1.2 c.c. of vaccine was given. The patient reported that the nose had dried by the following day and his "necessary handkerchiefs had dropped from about twelve per day to none" for hay-fever purposes. September 7, the second and final vaccination was given, as the patient had no further attacks.

Case 8.—The patient, a Cornell University student, aged 21, had had hay-fever during the past twelve years, and asthma with it the past three years. It lasts from about the second week in August to the end of September. Sept. 11, 1912, the first vaccine was given, and material was sent to the patient, who was given a second injection, September 17. A letter from the patient dated the 17th reported the "head fairly clear, and felt much better," but no further information was received from him or his physician.

The cases are few, but are certainly interesting, especially Cases 3, 4, 5 and 7, in which the patients were under my personal observation in 1912, as were the patients in Cases 1 and 2 in 1911. The satisfying results of these two led to the continuation of the work in 1912, and the experimental vaccination was an excellent guide to procedure. It appears of promise, also, that these two were much better in 1912, though they took no treatment.

I have made no attempt to discover any "specific germ" of hay-fever and do not believe that it exists. The theory on which the work was based was the strengthening of the nasal mucosa, so that the irritants, whatever they are, would be without effect.

THE CEREBRAL FORM OF PERNICIOUS MALARIA *

J. F. PATTERSON, M.D.
NEWBERN, N. C.

Cerebral malaria is a form of pernicious malaria, the etiologic factor being the *estivo-autumnal parasite,* that is, the *crescent-forming hemameba.* The fevers caused by the estivo-autumnal parasite are characterized by some main group of symptoms depending on which organ of the body participates mostly in the infection, in other words, the organ that is affected; for the malarial parasite of this type can attack any organ in the body and give rise to symptoms characteristic of involvement of that particular organ; for example, if the liver is involved we have bilious symptoms, if the brain, cerebral symptoms, and so on. This is the most important point to remember, for we can readily see that pernicious malaria may simulate any disease and lends emphasis to the necessity of a blood examination for the malarial parasite in all cases in which the diagnosis is obscure.

---

* Chairman's article before the Section of Practice of Medicine at the 1913 Session of the Medical Society of the State of North Carolina, held at Morehead City, N. C., June, 1913.

The symptomatology of cerebral malaria is most varied and complex; the disease may simulate any organic disease of the brain and, in some cases, the resemblance is so exact that a proper diagnosis rests on the blood examination. As a rule the clinical picture is dominated by a well-defined group of symptoms and on this basis we may divide cerebral malaria into the following types: (1) comatose; (2) motor irritative; (3) motor depressive.

Coma is a symptom of all the types, the associated symptoms varying with the different types. As a rule cerebral malaria does not occur with the first paroxysm but is preceded by several. Its onset is always sudden, occurring with startling swiftness.

COMATOSE TYPE

This is by far the most frequent. The coma is the cardinal symptom; it may be of varying duration and intensity; it may last a few hours or several days. As a rule it is quite pronounced, there being no response to stimulation. A characteristic of the coma is fibrillary twitching of the muscles of the extremities; the eyes are closed, the lids being resistant to elevation, eyeballs rotated upward, the pupils equal, usually dilated but sometimes contracted. The pulse may be either fast or slow, respirations as a rule being stertorous but in some cases shallow and rapid. The temperature is high, varying between 103 F. and 105 F. The coma usually subsides with diaphoresis, but in some cases it does not; instead being more pronounced until death, which usually results from pulmonary edema.

The following case well illustrates the comatose type:

Case 1.—Mrs. X, aged 53, was seen at 7 p. m. on the night of October 9. She was in a profound coma, respirations 25 and stertorous, pulse 140 and weak, skin ashy in color and dry, eyes closed, the balls were rotated upward and moving slightly, pupils equal, slightly dilated and reacting to light; temperature by rectum was 103 F. The coma was profound, the patient not responding to any form of stimulation.

The following history was obtained from relatives:

For the past six weeks she had been ill, first suffering from gall-stones, and for the past two weeks had been treated by an osteopath, a diagnosis of nephritis having been made by him. On close questioning it was learned that on alternating days she had been having a feeling of coolness followed by nausea, vomiting and an elevation of temperature. On diaphoresis the symptoms subsided, undoubtedly being malarial paroxysms which were unrecognized. At noon the day that I was called to see her, she had another of these paroxysms, soon after became unconscious, the coma being quite profound when I saw her at 7 p. m. A specimen of urine obtained by catheterization showed the findings of a febrile albuminuria, there being a slight amount of albumin and no casts. A blood examination revealed numerous malarial parasites of the estivo-autumnal form, most of them being extracorpuscular.

At 5 p. m. she was given hypodermically 12 grains of quinin and urea hydrochlorid, also 1/40 grain of strychnin; at 11 p. m. 6 grains more of quinin hypodermically was given. At midnight she showed signs of regaining consciousness; at 1 a. m. she had completely aroused and the convalescence from then on was uneventful, there being no return of symptoms. Her treatment consisted of 6 grains of quinin hypodermically every three hours for seventy-two hours, 20 grains of calomel during the first twenty-four hours; the remainder of the treatment consisting of tonics.

This case was interesting because it closely resembled uremia, the differentiation being based on (1) urinary findings, (2) blood examination, (3) history of previous malarial paroxysm, (4) pupils being dilated.

MOTOR IRRITATIVE TYPE

While the motor symptoms predominate, coma is also a symptom. The motor symptoms may vary from twitching of the muscles to clonic convulsions and may simulate uremia, hysteria or tetanus. The following case so closely resembles hysteria that at first that diagnosis was made:

Case 2.—Mrs. B.'s housegirl, a negress aged about 21, was found unconscious in the living-room where a few minutes before she had gone to do housework. When I arrived the girl was lying on the floor profoundly unconscious, muscles rigid, eyes closed, lids resistant to opening, pupils dilated but responsive; the pulse was 120. The least stimulation of the skin caused clonic convulsions, each convulsion lasting from five to twenty seconds. No history was obtainable and the patient was removed to the hospital. It was impossible to take temperature by mouth or rectum because of the clonic and tonic spasms; for the same reason attempts at catheterization were a failure. Morphin ¼ grain was given hypodermically and during the night ½ grain more was given because of the continuance of the motor symptoms. The condition remained the same until the following afternoon at 5 p. m., when the patient became somewhat relaxed. Her temperature was then taken by rectum and found to be 102 2/5 F., pulse 140, weak and intermittent; a blood examination revealed the estivo-autumnal parasite, and the condition was now recognized as cerebral malaria. At 6 p. m. the patient was given 12 grains of quinin hypodermically and thereafter 9 grains every four hours; 4 drops of croton oil also was given. The following morning she aroused from the coma, the temperature was normal, and on being questioned she stated that she had been having chills for the previous two weeks. She made a rapid and uneventful recovery.

MOTOR DEPRESSIVE TYPE

This form may present paralysis of the monoplegic, paraplegic or hemiplegic type, the paralysis usually commences and subsides with the paroxysm. This form of cerebral malaria is extremely rare and very few cases have been reported. Landouzy states that he has only been able to collect twelve cases in all the literature. The following case is of the hemiplegic type, the hemiplegia lasting for forty-eight hours:

Case 3.—Mrs. P., aged 65, an unusually well-preserved and active woman, had a chill on June 12 and another on June 14. I saw her on this day. She responded to treatment and was afebrile on the 15th, but the next day at noon she had her third chill. At 4 p. m., when I saw her, the temperature was 103 F., pulse 90 and full. She was confused, her speech was thick and slurring, and by 8 p. m. she was profoundly comatose. There was complete flaccid paralysis of the right side of face and body, knee-jerk on the right side being exaggerated, breathing stertorous and 18 per minute, pulse bounding and 74. The eyes were closed, pupils contracted, eyeballs deviated toward the left, rectal temperature was 104 1/5 F. A blood examination revealed malaria plasmodia. Quinin 6 grains was given hypodermically every four hours. The following day the condition was practically the same, but by night the patient had responded slightly from coma. Her paralysis gradually subsided and forty-eight hours after onset it had completely disappeared. The quinin was continued hypodermically for four days. Mental confusion remained for four weeks. This was a most interesting case and the diagnosis rested between cerebral malaria and cerebral hemorrhage due to rupture of a vessel as a result of the elevation of blood-pressure produced by the paroxysm. The rapid response to quinin and complete disappearance of the hemiplegia in forty-eight hours, there being absolutely no sequelae, show conclusively that the case was cerebral malaria.

In the majority of cases all mental symptoms disappear with the subsidence of the paroxysm; but in a few, symptoms of confusion remain for some time. In Case 3 symptoms of confusion remained for four weeks. At the last meeting of the Southern Medical Association, Dr. L. A. Green of Jacksonville, Fla., stated that the records of the State Hospital of Florida show a number of cases of patients admitted as insane whose condition was due to cerebral malaria and responded to quinin medication. This I readily believe, for I was so fortunate as to see in consultation with Dr. R. D. V. Jones of Newbern, N. C., a case of cerebral malaria in which symptoms of confusion lasted for over two months. This patient had hallucinations of sight and hearing and illusions of the same senses and at times was in a state of grandeur. So it should be recognized in malarial districts that cerebral malaria is a possible etiologic factor in all acute mental conditions.

CONCLUSIONS

1. Cerebral malaria may assume the form of any brain disease.
2. It is practically never due to the first paroxysm but to succeeding ones and by energetic treatment of the first paroxysm it may be prevented.
3. The specific action of quinin hypodermically and that the drug must be given for effect—the dose usually being 9 to 12 grains every four hours.
4. Cerebral malaria is a frequent disease in malarial districts.

201 Elks Temple.

CASE OF STAB WOUND OF THE HEART, OPERATION AND RECOVERY

SAMUEL BRADBURY, M.D.
Assistant Attending Physician, New York City Hospital
NEW YORK

An Italian woman, aged 44, was brought to the Pennsylvania hospital at noon on April 18, 1909. She had been stabbed in the chest about ten minutes previously. Examined immediately on admission. She was unconscious, very pale, the skin was moist and cold, there was slight dyspnea and no pulse could be felt at the wrist. A wound 1.5 cm. long was present over the second left intercostal space about 5 cm. from the sternal edge. The heart sounds could be heard faintly, were rapid and slightly irregular, but no adventitious sound was heard. The breasts were lactating and full. The outline of cardiac dulness was not determined. Ether, 25 minims, then 1/20 grain of strychnin were given hypodermatically at once, and a very feeble radial pulse could then be palpated, rapid and slightly irregular. The diagnosis was wound of the heart.

Operation was started at 12:50 p. m. A curved incision was made about the inner border of the breast from the second to the fifth rib, and skin, breast and muscles reflected outward. The wound was then seen to enter the thorax through the fourth left intercostal space about 3 cm. from the edge of the sternum. The third and fourth ribs were divided at the costochondral junction and at the chondrosternal articulation and were turned inwardly over the sternum. The pleural cavity was opened freely by this procedure and it was noted that it contained only a small amount of blood. The internal mammary artery was ligated above. A wound 5 cm. long in the precordial fat and pericardium was enlarged by tearing, releasing a quantity of blood and blood-clots which gushed out under considerable tension. The pulse improved immediately and was then noted to be 80, regular and fairly full. The heart wound was about 3 cm. long, crossing the anterior interventricular groove diagonally from above and to the left, to below and to the right about midway between the apex of the heart and the auriculoventricular groove, a little more than half of the wound lying over the right ventricle. A column of dark blood spurted out with each systole. Six or seven linen thread sutures closed the wound, one of them catching the cut left descending coronary artery. Some clots lying behind the heart were scooped out with the fingers, and as there was no further bleeding the pericardium was closed, using a continuous catgut suture. A rubber drainage-tube was inserted through the left ninth intercostal space into the thoracic cavity and sutured in place. About a liter of blood was drained out, most of it having come from the pericardium. The ribs and intercostal muscles were sutured with catgut, the pectoral muscles with catgut and the skin with silkworm-gut. A small gauze drain was inserted into the outer stab wound. The operation was finished at 1:55 p. m.

The anesthetic was ether, 2½ ounces by the open drop method. It was started at 12:45 and stopped at 1:45 p. m. The patient was then given ¼ grain morphin sulphate, 1/150 grain atropin sulphate hypodermatically, and 8 ounces of normal saline solution slowly by rectum.

The blood examined during operation showed hemoglobin 75 per cent., red blood-cells 4,842,000 and leukocytes 19,400.

The patient was quite comfortable, with a temperature of 100 and a pulse of about 100 until the fourth day. Then there was a sudden increase in the pulse-rate to 140, great restlessness, some dyspnea, a marked engorgement of the cervical veins and a dilatation of the left pupil. These symptoms were thought to be due to a pericardial effusion. The fifth day the venous engorgement and dyspnea were much lessened, and on the sixth day a large amount of fluid was removed from the chest after the drainage tube had been removed, the sinus opened up and the tube replaced. Until the fourteenth day the breasts required stupes and massage. On the thirty-second day, the second day in a chair, the patient had a sudden attack of cyanosis and marked dyspnea, which lasted only five or ten minutes, and was relieved as soon as she lay down. This attack may have been due to an embolus, but there were no other symptoms. On the forty-second day a consolidation developed in the upper lobe of the left lung. She ran a high remittent temperature for five days, then it fell to normal and the cough and all the signs in the lung cleared up.

She was discharged on the ninetieth day, easily able to get around by herself. Her pulse-rate was 88, heart was in its normal position, and the heart sounds were of normal character.

A representative of the Pennsylvania Hospital Social Service Department visited her in April of this year and reports that she looks perfectly well, and is doing her own housework. She has a little dyspnea on climbing stairs, but never any cardiac pain or edema. Her pulse is 64, regular and of good volume.

There are two points of interest in this case. First was the marked heart tamponage with the immediate and marked improvement in the rate and character of the pulse when the pericardium was opened. The second interesting feature was the division and ligation of the left descending coronary artery. In the several lists of cases[1, 2] published, this complication is noted in six; this case is the seventh. The cases are those of Cappelen, Pagenstecher, Vince, Foramitti, F. T. Stewart's first case, and one of those in the series of twenty-one reported by E. Hesse. Three of the seven patients died within three or four days of operation, four have recovered. Hesse's patient was well eighteen months after operation, the woman reported in this paper is well four years after operation. Stewart's patient worked for five years as a janitor, handling heavy boxes, and finally died of pulmonary tuberculosis. The detailed necropsy report is given in his recent paper,[3] and showed quite an exten-

---

[1] Pool, E. H.: Ann. Surg., 1912, lv, 500.
[2] Peck, C. H.: Ann. Surg., 1909, l, 100.
[3] Stewart, F. T.: Five Cases of Suture of the Heart, Ann. Surg., July, 1913, p. 67.

sive myocarditis and the wall of the ventricle was very thin at one place.

These cases would seem to be of considerable interest in view of all the recent clinical and experimental work that has been done to prove that the coronary arteries are not end arteries, as was at one time supposed.

680 Madison Avenue.

A PRELIMINARY NOTE ON SPIROCHAETA PALLIDA AND LIVING TISSUE-CELLS IN VITRO *

EDNA STEINHARDT, M.D.
NEW YORK

Having successfully applied Harrison's method of tissue growing *in vitro* to the cultivation of the virus of vaccinia,[1] we have here tried the same method with the *Spirochaeta pallida*. In the present experiment the organisms used were from a culture obtained from Dr. Noguchi. He has kept it growing for some length of time and states that it has lost most of its virulence.

Hanging-drop preparations were made of small pieces of the testes of the rabbits inoculated with spirochetes, to which rabbit plasma was added. The preparations were incubated at 37 C. (98.0 F.). Before incubation preparations examined in the dark field did not show spirochetes nor did those examined during the first few days of incubation. Evidently very few spirochetes were inoculated. The cells of the testes, however, showed a good growth.

After incubation for twenty-five days examination with the dark field showed many organisms. These were extremely motile. Short forms found strongly suggested multiplication of the organism and not merely a survival of the original inoculation. The early negative examinations would also suggest a multiplication.

The organisms were inoculated into the testes of a rabbit and the virulence will be reported later. It seems possible by this method of growing avirulent cultures with living cells and transferring them to fresh cells to restore their pathogenicity. This would be in line with the increase of virulence found in bacteria submitted to the action of immune serum. Further experiments are now being made in this direction and also on the direct inoculation of spirochetes from syphilitic lesions.

Research Laboratory, East Sixteenth Street.

THE PREPARATION OF ALBUMIN MILK IN THE HOME

Jules M. Brady, B.S., M.D., St. Louis
Assistant Professor of the Diseases of Children, St. Louis University School of Medicine

The value of albumin milk as a therapeutic agent in the nutritional disturbances of infancy has been fully established. The difficulty of its preparation has curtailed its use very much.

The original directions for its preparation called for a quart of sweet milk brought to the boiling point, allowed to cool to 100 F. and then curdled with a tablespoonful of essence of pepsin. The whey is drained off and the curds suspended in a muslin bag for two hours. The curds are then passed through a hair sieve by gentle pressure with a large spoon or potato masher adding at the same time a pint of fat-free buttermilk. Boiled cool water is then added to bring the whole up to one quart. The preparation is then ready for the addition of from 1 to 5 per cent. of maltose and dextrin.

The main difficulty is in getting the curds to pass through the sieve. In our institution we prepare from 10 to 15 quarts a day. This formerly was a huge task and would consume anywhere from one-half to two hours. And still the product could not be considered ideal. As the result of mashing the curds through the sieve, the fat separates out in the form of butter and your infant is robbed of many calories that he ought to be getting. Recently some have the curds prepared from skim-milk instead of whole-milk. This in some instances might be desirable but in a large group of infants we desire the mixture to contain fat.

METHOD

At St. Ann's Infant Asylum we have found a method of reducing very much the time and labor. The following are the directions in detail:

1. Bring a quart of sweet whole-milk to the boiling point; raw-milk is not used as its curd is much tougher.
2. Cool to 100 F.
3. Add one tablespoonful essence of pepsin and allow to curdle.
4. Pour off the whey and suspend curds in muslin bag two hours.
5. Stand bag containing curds in 8 ounces boiled cool water for one hour. This is very important and is the secret to the success we have had in the preparation of this food.
6. Remove the bag from the water, allow as much water to drip as will and place curds in sieve.
7. Add pint of fat-free buttermilk to sieve containing curds, and stir; it will be found that the curds will pass through in two to three minutes, which must be repeated three or four times.
8. Turn the bag inside out and return to the 8 ounces of water so as to obtain all the curd.
9. Pour in the sieve the 8 ounces of water which was used to soak the curds.
10. Add enough water so that the whole measures a quart.
11. Add the percentage of maltose-dextrin desired and put on ice.

We are able to prepare 10 quarts of this food after the curds have drained and soaked in less than ten minutes with the minimum separation of the fat.

1467 Union Avenue.

A CASE OF ANEURYSM OF AORTA RUPTURING INTO THE VENA CAVA

Orlando H. Petty, M.D., Philadelphia
Instructor in Medicine, Jefferson Medical College; Pathologist and Assistant Physician to St. Timothy's Hospital

History.—D. S., bachelor, aged 70, 6 feet in height, weight 220 pounds, with negative family history, denying syphilis, had never been ill until several months previous to the time I first saw him, Feb. 21, 1911. During those months he became short of breath and had pain in the front part of his chest when climbing the hill to his home and had been treated for asthma. When I first saw him he had severe pains in his chest and was so short of breath that he could not walk across his room. He was chiefly anxious because his eyelids, face and hands were swollen, and his tongue seemed thick.

Examination.—Patient was dyspneic, his face, neck, arms and upper part of his chest swollen and cyanosed, with edema over the exposed bony surfaces. The external jugular veins were full, but no pulsation could be detected. Superficial veins of upper chest were plainly visible. The rest of the body was neither edematous nor cyanotic. There were no visible pulsations. There were distinct diastolic shock over great vessels at base of heart, and heart dulness on the right at the right edge of the sternum and on the left at the midclavicular line in the second interspace and 2 cm. outside of midclavicular line at the fourth interspace. Apex beat was at sixth interspace 2 cm. outside of midclavicular line. There was also a distinct dulness from third rib at right sternal margin extending almost to right midclavicular line, thence upward to second rib, and then slightly upward and inward, crossing first interspace at right sternal border and extending entire width of sternum. No other pathologic dulness was discovered over chest. Liver was enlarged and tender. There was no adenitis.

---

* From the Research Laboratory, Department of Health, New York.

[1] Steinhardt, Israeli, and Lambert: Jour. Infect. Dis., 1913, xiii, 294.

A to-and-fro systolic murmur was heard over precardia, also over dull area to right of sternum, being louder at this point. Heart sounds were weak; no valvular lesions could be definitely diagnosed. Systolic pressure was 136, diastolic 110, the same in right and left arms.

February 22: Patient complains of fulness of throat, and tongue seemed thicker. The swelling and cyanosis noted the day before were more marked.

A prominent clinician, who had seen two similar cases, one a case reported by Pepper and Griffith, the other his own reported in 1906, saw this case with me and agreed with my diagnosis of aneurysm of the arch, rupturing into the superior vena cava. There were no marked changes in the patient's condition until February 28, when the physical signs had changed and the distressing symptoms were greatly diminished. The dull area was much smaller and the to-and-fro murmur had disappeared. Within the next two or three days the cyanosis and edema also disappeared, which suggested the need of a revised diagnosis. Because of the previous classical symptoms, however, I was unwilling to give up my diagnosis of this rare condition, regarding the changed signs and symptoms as being due to closure of the perforation by the formation of a blood-clot.

The patient died March 8, 1911, just fifteen days after I first saw him, and I received permission to open the chest. This revealed a fusiform aneurysm involving the ascending and horizontal parts of the aorta, the maximum diameter being at the junction of these two portions. This diameter is 7 cm. The aneurysm terminated immediately beyond the origin of the left subclavian.

The inner surface of the wall of the aneurysm was in general fairly smooth, although almost uniformly covered by atheromatous plaques, only a part of which were calcareous, a few of the latter form slight elevations on the wall.

At the posterior portion of the aneurysm where the diameter is the greatest, there was a secondary saccular dilatation. This was 3 cm. in diameter, almost circular in outline, and was 2 cm. in greatest depth. This sac was filled with a laminated blood-clot. The bulging of this secondary sac was directly in the line of the superior vena cava, which was carried distinctly backward and to the right at this point.

Slightly to the right and center of this sac was a nearly circular perforation, 5 by 6 mm. in extent, into the superior cava. Viewed from the caval surface this opening was near the margin of a slightly elevated and thickened grayish-yellow area 1.2 cm. in diameter. The point of perforation was directly on a level with the opening of the vena azygos major and 1 cm. from it. The perforation was 3 cm. from the junction of the right subclavian and innominate veins and 7 cm. from the aortic valves. This opening, which formed communication between the aorta and the cava, was completely closed by the blood-clot that filled the secondary aneurysmal dilatation as described before.

The necropsy findings therefore substantiated the diagnosis of aneurysm of the aorta with rupture into the superior vena cava. The changes in physical signs and symptoms six days before death were also fully explained by the blood-clot which closed the perforation.

6215 Ridge Avenue.

Tuberculosis of the Kidney.—It is now generally admitted that tuberculosis starts by attacking one kidney, that spontaneous cure of a tuberculous kidney does not occur, and that the only hope of saving the life of the patient rests on an early recognition of the disease and a speedy removal of the infected organ.—David Newman, M.D., *Glasgow Med. Jour.*

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

STREPTOCOCCUS VACCINE.—See N. N. R., 1913, p. 226.

Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Antistreptococcic Vaccine (Scarlatina Prophylactic).—This product is marketed in three ampules containing respectively 250 million, 500 million and 1 billion killed streptococci.

Strepto-Bacterin (Scarlatina Bacterin) Polyvalent.—This product is marketed in six ampules each containing 100 million killed streptococci.

SILK PEPTONE "HOECHST."—Silk Peptone "Hoechst" is a preparation of peptone derived from silk and standardized to a nearly uniform optical rotatory power.

Silk peptone is prepared from silk waste as follows:

The material is dried at 100 C. for forty-eight hours and then treated with from 3 to 5 times its weight of 70 per cent. sulphuric acid and allowed to stand for four days. It is then diluted with ten times its volume of water cooled by ice. The sulphuric acid is neutralized with barium hydroxid and filtered through charcoal. The residue on the filter is repeatedly stirred with warm water (25 C.) and decanted, or it may be washed thoroughly with boiling water.

The filtrates are concentrated at a temperature not above 40 C. The thick liquid, which must be free from barium and sulphuric acid, is poured with constant stirring into absolute alcohol which precipitates the silk peptone. Care must be taken that the alcohol is renewed at intervals so as to maintain the proper strength for precipitation. The yield with careful technic amounts to 20 to 30 per cent. of the products used.

Silk peptone is a white or yellowish powder, easily soluble in water, but not hygroscopic. The aqueous solution has a slight acid or amphoteric reaction. Its concentrated solutions are practically colorless and thus adapted for use in optical methods. It also possesses a high content of tyrosin.

Actions, Uses and Dosage.—Silk Peptone "Hoechst" is not employed therapeutically. It is used for the detection of peptolytic ferments either by changes in optical activity or by the precipitation of tyrosin. It is also valuable as an addition to culture mediums for the differentiation of bacteria.

For use silk peptone is dissolved in water, or in testing stomach conditions it may be dissolved in the filtered contents. The solutions must be clear and entirely neutral; if acid, they must be neutralized with sodium bicarbonate or magnesium oxide. If it is desired to keep a solution for some time, it should be covered with a layer of toluene.

(1) *To Test for Peptolytic Ferments in the Tissues.*—A small piece of the organ to be examined is introduced into a solution of silk peptone (25 per cent.), covered with a little toluene, and placed in the incubator. After a short time, if peptolytic ferments are present, a more or less abundant separation of tyrosin crystals takes place. In a similar way liquids may be tested for peptolytic ferments by mixing the clear filtrates with the silk peptone solution.

(2) *To Examine Stomach Contents for Peptolytic Ferments.*—5 c.c. of the stomach contents should be neutralized with magnesium oxide and filtered. To the filtrate 0.2 gm. of silk peptone are added. The mixture is incubated and examined at intervals of thirty minutes for a possible separation of crystals (tyrosin). If this occurs, the presence of peptolytic ferments may be assumed; to confirm this assumption a test for tyrosin should be applied.

(3) *The Optical Method.*—The material to be examined should receive the proper preliminary treatment, mixed with a solution of silk peptone and placed in a polarimeter tube, covered with some toluene, and the optical rotation immediately determined. This is repeated at intervals of several hours f [illegible] t two da[illegible] the mixture being placed mean-

while in the incubator. If a change in optical rotation occurs, while the control solution retains the original degree of rotation, the presence of peptolytic ferments may be assumed.

Manufactured by Farbwerke vorm. Meister Lucius & Bruening, Hoechst a.M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent or trademark.

Therapeutics

ORAL CLEANLINESS

(Concluded from page 1719)

MOUTH-WASHES AND GARGLES

There are perhaps fifty mouth-washes on the market. They are all more or less similar in their composition, more or less multiple in their constituency, and more or less expensive, and represent more or less enormous profits to their owners. A number of pharmacopeial and National Formulary preparations have been developed to meet the need for mouth-washes and also to imitate some of the proprietary preparations. A few of these formulas will be considered to see what is the need for so many ingredients and what is really the value of the various preparations.

Such polypharmacy as this is absolute nonsense. As in many pharmaceutical preparations, the value of the really useful ingredients is obscured by the useless shrubbery and weeds which surround them. A dash of this and a dash of that in these mouth-washes or gargles is simply playing to the galleries. Although it may seem a waste of time to criticize these simple and more or less harmless preparations, still, with the now recognized importance of oral cleanliness, it is as necessary to analyze our methods of procuring oral cleanliness as it is to note the efficiency of fumigation, and much of the latter is a delusion and a snare.

The following are a few of the mouth-washes most used:

LIQUOR ANTISEPTICUS ALKALINUS, N. F.

Potassium bicarbonate	3.2
Sodium benzoate	3.2
Sodium borate	0.8
Thymol	.02
Eucalyptol	.02
Oil of peppermint	.02
Oil of wintergreen	.04
Tincture cudbear	1.6
Alcohol	6.0
Glycerin	25.0
Talcum	1.0
Water	ad 100 0

This preparation is very similar to the much-advertised Glycothymoline. The proprietary preparation of Borolyptol is quite similar to this alkaline antiseptic solution, with the coloring matter omitted, and contains 8 per cent. of alcohol.

LIQUOR ANTISEPTICUS, U. S. P.

Boric acid	2 0
Benzoic acid	0.1
Thymol	0.1
Eucalyptol	.025
Oil of peppermint	.05
Oil of wintergreen	.025
Oil of thyme	.01
Alcohol	25 0
Talcum	2.0
Water	ad 100.0

This preparation is very similar to the long-advertised Listerine. The proprietary Euthymol is also very similar.

The Liquor Antisepticus can be made for about ten cents a pint and the Liquor Antisepticus Alkalinus for about five cents a pint. The profit on similar proprietary preparations may be readily estimated.

LIQUOR SODII BORATIS COMPOSITUS, N. F.

(Dobell's Solution)

Sodium borate	1.5
Sodium bicarbonate	1.5
Phenol (carbolic acid)	0.3
Glycerin	3.5
Water	ad 100.0

The much-used so-called Seiler's tablets may be offered in several formulas. The following is one of them:

Sodium bicarbonate	
Sodium borate	
Sodium chlorid	āā ℥ 84
Sodium benzoate	
Sodium salicylate	āā ℥ 3½
Eucalyptol	
Thymol	āā ℥ 3½
Oil of wintergreen	℥ 1

Of this mixture each tablet should represent 15 grains.

The proprietary preparation of Alkalol is believed to contain the following ingredients:

Boric acid	0.8
Sodium borate	2.5
Sodium bicarbonate	0 8
Sodium chlorid	0.8
Eucalyptol	.06
Oil of wintergreen	.06
Oil of spearmint	.04
Oil of thyme	.02
Camphor water	.4
Alcohol	5.0
Burnt sugar	9.8
Water	ad 100.0

The proprietary Formolid has about the following formula:

Acetanilid	2 grains	to the ounce
Alcohol	15	per cent.
Boric acid	2	per cent.
Boroglycerid	1	per cent.
Sodium benzoate	0.5	per cent.
Formaldehyd	0.25	per cent.

Eucalyptol, thymol, menthol, oil of wintergreen.

Mucol powder is about as follows:

Sodium borate	12.0
Sodium chlorid	12.0
Thymol	0.4
Camphor	0.2
Oil of wintergreen	0.125
Eucalyptol	0.2

Kolynos is stated to contain the following:

Alcohol	21.8
Calcium carbonate	20.5
Soap	26 0
Saccharin	.50
Benzoic acid	2.50
Oil of mint	2.25
Thymol	.25
Oil of eucalyptus	2.0
Glycerin	24.2

Reference to the foregoing formulas shows that the aim is more or less antiseptic, and that the preparations are more or less alkaline and demulcent, with more or less modification of the taste, and some coloring matters of unimportance. The antiseptics used are alcohol, glycerin, salicylic acid, boric acid, sodium borate, benzoic acid, thymol and, in the one instance of Dobell's solution, phenol. Of course there can be no question of the antiseptic action of phenol in a 0.3 per cent. solution.

The antiseptic action of alcohol and any possible astringent action is more or less negligible, except in the Antiseptic Solution and the preparations that are similar to it, and in the Kolynos, in which the amount is from 21 to 25 per cent.

The only preparation mentioned containing salicylic acid is Seiler's tablet, which contains sodium salicylate in very small amount.

The antiseptic and demulcent action of glycerin varies of course entirely with its percentage.

All of these preparations contain boric acid or sodium borate. The action of these drugs in the strength used is very mildly antiseptic, and they are very weak antiseptics even when undiluted. They are more or less soothing to mucous membranes, and more or less stimulant to the flow of mucus.

Several of the preparations contain sodium chlorid. This of course is simply soothing to mucous membranes in the solution presented.

Sodium bicarbonate is alkaline and soothing and promotes mucous secretions.

Benzoic acid, or benzoate of sodium, appears in some of them, and is very mildly antiseptic and has a pleasant odor.

Thymol is an antiseptic, but not of much value in the strength presented, and is disagreeable.

Eucalyptol may be mildly antiseptic, but has no special value as a mouth-wash.

The other ingredients are almost entirely those of taste and smell, and are more or less characteristic of the different preparations.

The formaldehyd in the Formolid preparation in strength of 0.25 per cent. adds slightly to the antiseptic action of that preparation.

Camphor is more or less antiseptic and pungent, and promotes secretion. In strong solution it is slightly anesthetic.

Now the real question is: Do the foregoing multiple mixtures fill the requirements of the object aimed at therapeutically? As mouth-washes we wish at times antiseptic action, at other times cleansing action, at other times soothing and sedative action.

As antiseptic for the mouth and throat we cannot improve on the carefully localized applications of the tincture of iodin or of weaker solutions of iodin; when deemed advisable, of a strong solution of nitrate of silver carefully applied locally; or of local swabbing with strong hydrogen peroxid solution, or the more generalized washing or spraying with dilute solutions (provided that hydrogen peroxid is not applied to a deep ulcer or sinus where it can possibly cause disintegration of tissue). Strong preparations of glycerin and strong solutions of alcohol are other pleasant antiseptics, and the latter is decidedly astringent.

When a strong antiseptic is used, after it has acted for a few minutes, soothing washes or sprays should be used. Also it should be remembered that any simple cleansing wash (than which perhaps nothing is better than simple salt solution in so-called physiologic strength, 0.9 per cent., or ¼ teaspoonful of salt to about half a glass of warm water, to which may or may not be added another ¼ teaspoonful of sodium bicarbonate) is of value on an inflamed mucous membrane. After such cleansing of the membrane, the antiseptic may be directly applied, if such is indicated, or the cleansing and soothing gargle or mouth-wash just mentioned may be all that is needed. It is not the particular preparation that is used, or the particular ingredients in mouth-washes and gargles, but it is efficient washing and gargling that is of benefit.

The value of boric acid, not only in being mildly antiseptic, but also in promoting mucous secretion and therefore causing the easy removal of follicular exudates and membrane, should not be forgotten. Many times the insufflation of boric acid powder directly on the region involved is most efficient. At other times gargling of a solution in which boric acid is suspended is of value. While boric acid will dissolve in water only to about 4 per cent., a large surplus of boric acid should be left undissolved in the bottle. The bottle should be shaken, and the patient then gargles a boric acid solution which will deposit boric acid crystals on the throat, and will often be of as much value as though the powder were insufflated.

Perhaps the most pleasing pungent taste to the majority of patients is peppermint, and there is no reason for mixing this up with several other aromatics. If peppermint is disagreeable to a particular person, wintergreen may be substituted.

The following are formulas of a few simple solutions for mouth and throat washes:

		gm. or c.c.		
℞	Acidi borici	2		ʒ ss
	Potassii chloratis	5	or	ʒ i
	Aquae menthae piperitae .	200		fl℥ vi

M. Sig: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

		gm. or c.c.		
℞	Sodii chloridi			
	Sodii boratis ....āā	2		ʒ ss
	Glycerini	50	or	fl℥ iss
	Aquae gaultheriae...q. s. ad	200		fl℥ vi

M. Sig.: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

		gm. or c.c.		
℞	Acidi salicylici	2		gr. xxv
	Glycerini	25	or	flʒ v
	Aquae menthae piperitae, q. s. ad	200		fl℥ vi

M. Sig.: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

The foregoing of course are only suggestions, and each physician should order the mouth-wash that he desires for his patient as carefully as he would write any other prescription. There is nothing wonderful or mysteriously curative in any of the formulas described, and simple home remedies will often be as effective as an expensive proprietary preparation, unless an antiseptic is required. Even simple starch water makes a very soothing gargle. The enormous literature offered by the Kolynos promoters is certainly not justifiable. No one would dispute that their preparations are more or less germicidal. On the other hand, it could be readily disputed that their combination was any more active than 25 per cent. alcohol in water or 25 per cent. glycerin in water, and a preparation of glycerin and alcohol with a mint taste may be ordered by any physician.

It is not our object to discuss the value of the various proprietary tooth-pastes. That the use of an antiseptic tooth-paste or an antiseptic mouth-wash, once or twice a day, will prevent acute infections that more or less enter through the nostrils must of course be denied. Strong antiseptic tooth-paste will not be tolerated by most gums, and it has been suggested above that one does not want the tooth-cleansing preparation too soapy, too irritant or too harsh.

If there is actual inflammation of the gums, medical or dental advice should be sought.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, NOVEMBER 15, 1913

RECENT PROGRESS IN THE STUDY OF PNEUMONIA

It has been remarked before in these columns that the advent of a new and effective experimental method is almost invariably followed by achievements in the field of discovery. Accordingly, the possibility of producing a fatal lobar pneumonia with a relatively rapid course, by the Meltzer method of intratracheal insufflation of cultures of pneumococci, has already been the means of demonstrating some of the agencies which determine the severity of the symptoms and the nature of the outcome of a most dangerous disease. To-day it is the importance of the leukocyte in the resistance of animals to experimental pneumonia that has attracted our attention. Winternitz and his colleagues[1] at the Johns Hopkins Hospital have compared the influence of two related substances, one of which is powerfully leukotoxic, on the course of the disease. Benzene (benzol), one of the compounds selected, not only destroys the leukocytes in the circulating blood, but also affects the bone-marrow in particular, and other hemopoietic organs to a less extent. On the other hand toluene (toluol), which is methylbenzene, produces no demonstrable change in the number of leukocytes. Animals treated with the leukotoxic benzene rapidly succumb to an induced pneumonia, whereas those treated with toluene, a similar chemical compound causing no leukopenia, show no decreased resistance.

The rôle of the leukocyte in the resistance of animals to experimental pneumonia is further emphasized by the fact that animals which respond to a pneumococcus infection with a leukocytosis, which occurs after repeated injection of toluene, are more resistant to the disease. Moreover, hyperleukocytosis can be induced in other ways—by the repeated injection of protein substances, for instance—before the production of the pneumonia, likewise apparently increasing the resistance of the infected animals.

The further fact established by Kline and Winternitz, that the number of bacteria inoculated is one among the numerous factors determining the outcome of the disease, has made possible new studies in immunity. If a small number of organisms are injected, the animals usually recover. Repeated doses were therefore given. An active immunity was thereby developed and animals thus treated have been able to withstand repeated increasing doses of pneumococci intratracheally. The serum from animals actively immunized in this way may be used successfully to confer passive immunity against the homologous organism. This is a step in a hopeful direction.

Another recently studied feature of interest in connection with the symptomatology of pneumonia concerns the peculiar detrimental influence exerted by the microorganisms responsible for the disease on the capacity of the blood for combining with oxygen. Experiments *in vitro* have demonstrated that this is decreased when the pneumococcus is grown in blood and a comparable change is produced with even greater readiness in solutions of the respiratory pigment, hemoglobin. The lowering of the oxygen-combining power is apparently due to the formation of methemoglobin.[2] Analogous changes have now been demonstrated to take place in the animal body itself, when there is a severe pneumococcus bacteriemia.[3] The findings have even been extended to human cases.[4] In most patients with uncomplicated lobar pneumonia the decrease of respiratory surface is completely compensated for, and the oxygen content of the blood is within normal limits. In the terminal stage of the fatal cases of pneumonia in which death does not occur with great suddenness Peabody has found that there is often a progressive diminution in the oxygen content of the blood. Synchronous with this is a progressive decrease in the oxygen-combining capacity of the blood. These changes are usually seen in patients in whom an intense bacteriemia has developed, and are analogous to those found in the arterial blood of infected rabbits, and to those resulting from the growth of the pneumococcus in blood *in vitro* as mentioned above. It is logical therefore to explain all of these findings in the same way, namely, as probably the result of a change of oxyhemoglobin to methemoglobin, which no longer acts as a carrier of oxygen. It seems reasonable, further, to believe that in many cases of pneumonia this modification of the molecule of the blood pigment is an important factor in the immediate cause of death, for the terminal symptoms—toxemia, cardiac failure, polypnea, pulmonary edema and cyanosis—run parallel to the changes in the blood and may well be due in part to the deficient oxygenation dependent on them.

SENSITIZED VIRUS-VACCINE

Some years ago Besredka observed that if an otherwise lethal quantity of typhoid bacilli was mixed either with heated beef-serum or rabbit-serum and injected intraperitoneally into a guinea-pig, the animal would survive. The heated serum did not kill the bacilli and it was thought that the serum stimulated the leukocytes at the same time as it agglutinated the bacilli, and thus made them easier of attack by the phagocytes. He then soaked the bacilli in serum for a while, removed them by centrifugation and washed them in salt solution. In this case also the guinea-pigs survived the injection of what otherwise would have been a fatal dose. This experience led him to use specific antiserum for the treatment or sensitization of various germs before injection, thus eliminating everything in the serum except what would adhere to the bodies of the micro-organisms, namely, the specific antibodies. The injection of germs so treated produces a well-marked active immunity, and Besredka calls this kind of antigen or living vaccine "sensitized virus-vaccine."

---

[1] Winternitz, M. C., and Hirschfelder, A. D.: Studies on Experimental Pneumonia in Rabbits, Jour. Exper. Med., 1913, xvii, 657. Hirschfelder, A. D., and Winternitz, M. C., ibid., 666. Kline, B. S., and Winternitz, M. C.: ibid., 1913, xviii, 50, 61.

[2] Butterfield, E. E., and Peabody, F. W.: Jour. Exper. Med., 1913, xvii, 578.

[3] Peabody, F. W.: The Oxygen Content of the Blood in Rabbits Infected with Pneumococcus, Jour. Exper. Med., 1913, xiv, 1.

[4] Peabody, F. W.: The Oxygen Content of the Blood in Lobar Pneumonia, Jour. Exper. Med., 1913, xiv, 7.

Vaccines of this nature have been prepared for a number of diseases, as typhoid fever, bubonic plague, cholera and dysentery. The antirabic vaccine used to prevent rabies at the Pasteur Institute in Paris is now a sensitized virus prepared by treating fixed virus with antirabic serum. Besredka asserts that the injection of sensitized living germs produces a more substantial immunity and a greater production of antibodies than the injection of germs killed by heat or in other ways. His chief support for this assertion is the results obtained in the immunization of apes against typhoid fever. In this case sensitized living typhoid bacilli gave absolute protection, causing no fever and no reaction, while killed bacilli failed to protect adequately. Apparently the method is harmless, at least so far as the typhoid virus-vaccine is concerned, as Besredka reports that about ten thousand persons, men, women and children, have been inoculated without a single mishap of any kind. Besides the possibility of acute infection, which seems to be extremely remote in view of these results, there is also the possibility that in some persons the injection of living bacilli might lead to the development of a carrier state, which would be very unfortunate indeed. It will require a great deal of experience before we can feel that we are justified in deciding one way or the other in regard to this possible danger of creating typhoid carriers.

Another important fact to be considered is that there is no evidence that in human beings sensitized living typhoid bacilli give any better protection than killed bacilli, which, as practical experience in the United States Army and elsewhere abundantly demonstrates, do protect against typhoid fever. Hence it will be necessary, before the general use as vaccine of sensitized living typhoid bacilli can be considered seriously, not only to overcome the fear of infection, of which there seems to be little or no risk, but also to demonstrate conclusively that there is no danger of making typhoid carriers and that the results produced are superior to those now obtained with dead bacilli. What is true of this virus-vaccine is of course true also of other similar vaccines, so that at present the obstacles to the use of such living germs for protective purposes would seem to be quite impassable.

THE PRINTING INDUSTRY AND SKIN DISEASE

During the past year or more an exceptionally large number of cases of disease of the skin presenting symptoms of pronounced similarity have occurred among the printers employed in certain newspaper establishments in Berlin. At the outset of the illness the patients exhibited in the skin about the hands and forearms—the only parts of the body ordinarily involved—a characteristic condition of inflammation. The skin was hyperemic and tense, unduly warm to the touch, and exhibited incipient blisters. Somewhat later in the progress of the cutaneous disturbance exfoliation and other signs of artificially produced eczemas put in an appearance, giving evidence of a localized disease of the skin such as is attributable to occupational conditions. The testimony of the workmen involved indicated that these peculiar pathologic skin manifestations had their beginnings with the introduction of trade substitutes for the oil of turpentine commonly employed in printing-offices to wash and clean the type that has been in use.

The newer products which have been employed to replace the oil of turpentine for removing the ink from printers' forms include benzin, lye, petroleum and certain kinds of pine oil. All of these are either of themselves obviously injurious to the skin, as is well known to be the case with strong lye, or they frequently contain irritating adulterants or impurities which are present owing to the imperfect rectification in the processes of manufacture. In one Berlin printing-office, in which nearly half of the workmen who had to deal with the type forms showed symptoms of skin disease, the diverse cleaning fluids used were in every case objectionable.[1] The oil of turpentine used was adulterated with impure benzene (benzol); the petroleum was poorly rectified. Both of these products, when pure in the best technical sense, are among the least objectionable of the cleansing reagents employed in this department of the printing industry. Skin disease has rarely been reported when they are adopted. To be safe for use in contact with the skin, petroleum should be free from acid and from certain complex organic impurities. Nearly all of the substitutes for oil of turpentine contain inferior benzin, which is decidedly toxic.[2] Benzin products are said to be finding their way into cheaper grades of paints and call for scrutiny from the point of view of danger to those who have to handle them. In the same Berlin printing-office a turpentine substitute used under the name of *Fütterin* was found to be a strongly alkaline, fields. Others are lying low, hoping that the storm will blow over and counting, doubtless, on the notoriously short memory of the public and the race-old tendency to be humbugged. The results of the *Tribune's* campaign are encouraging. The State Board of Health of Illinois will now feel that it has public opinion behind it in any action it may take toward revoking the licenses of the men who have sold their professional services to the scoundrels who own these advertising offices. The federal authorities which had had some of these individuals under investigation, previously, have brought matters to a head and have already secured the conviction and punishment of one quack. The Chicago *Tribune* has done one more public service and has increased the debt, already a large one, which the people owe it.

---

[1] Zellner, H., and Wolff, H.: Ueber die Ursachen der Hauterkrankungen in Buchdruckereien, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxv, 69.

[2] Zellner, H.: Farbenzeitung, xvi, No. 31.

A DESERVED HONOR

The announcement of the call of Colonel Gorgas to South Africa to aid in determining the best method of handling epidemic disease among the workers in the mining district is a fitting recognition of the magnificent work which he has conducted in Panama. The contrast of the present sanitary conditions in the Canal Zone with those under French rule, under which every tie in the line of the Panama railway was said to represent a human life, is sufficient to account for the new honor which has come to Colonel Gorgas. In view of his previous record we have no doubt of further success in this new undertaking.

THE FORMATION OF CONJUGATED GLYCURONATES

The conjugation of sulphuric acid with substances of a toxic nature is one of the unique protective methods of the organism. Thus the phenol and cresols which are so commonly formed in intestinal decomposition are eliminated as salts of sulphuric acid; and a comparable reaction occurs in the chemical arrangement whereby the much-discussed indol is, after slight preliminary oxidation, converted into indican, the compound in the guise of which indol is excreted. A host of other aromatic substances, including those resembling phenol or which by oxidation are changed into phenols, such as thymol, anilin, naphthalin, pyrogallol and tannin, are similarly combined with sulphuric acid, with or without preliminary oxidation, and are accordingly converted into relatively harmless products readily soluble and rapidly eliminated. It is not so generally appreciated, though the fact has long been known and described, that the carbohydrate derivative glycuronic acid serves the same uses as sulphuric acid in being combined with aromatic compounds and to a certain extent thereby detoxicating them. This chemical means of defense against poisons is one apparently favored by the organism in the case of certain higher alcohols such as thymol, camphor derivatives, menthol, etc. Apparently the sulphuric and glycuronic acid conjugations supplement one another, the former serving most prominently as a general rule. Sulphuric acid is a final product of oxidative changes in the body and it is easy to understand how this can become available in these protective operations. It is an end-product ready for elimination. Glycuronic acid, on the other hand, is a readily oxidizable compound. Ordinarily it is not found in the blood or tissues. The question therefore arises as to how the conjugate glycuronates are formed in the organism. It appears from the recent studies of Hämäläinen[1] that the alcohols which have a tendency to enter into this protective reaction are first combined with glucose which is always readily available in the body. It is from such glucosid-like compounds that the glycuronates are subsequently derived. In evidence of this explanation Hämäläinen has succeeded in isolating the intermediate santenol glucosid when alpha-santenol (which normally leads to the formation of a corresponding glycuronate) was suitably introduced into the circulation. Accordingly the primary protective device in these cases seems to involve the cooperation of the simple sugar, glucose.

NOMENCLATURE

At its recent meeting[2] the American Roentgen Ray Society adopted an official nomenclature pertaining to roentgenology. The adoption of such a list to be used in medical literature is commendable. By a continued insistence on the use of words mutually agreed on, medical publications will aid in giving simplicity to a nomenclature already so complicated that understanding is difficult. These terms have been used by The Journal for some time and have been found satisfactory; uniformity makes more easy the indexing of papers and communications on any topic and avoids multiplicity of terms which complicate the editing of manuscripts and bewilder the reader.

THE MODE OF ACTION OF ATOPHAN—2-PHENYLQUINOLIN-4-CARBOXYLIC ACID

Trustworthy experimental evidence[3] leaves no doubt that two comparatively recent additions to the evergrowing list of synthetic drugs, namely, 2-phenylquinolin-4-carboxylic acid (atophan) and 6-methyl-2-phenylquinolin-4-carboxylic acid ethyl ester (novatophan), increase the elimination of uric acid in man. For the practical consequences of this effect as well as for purely theoretic reasons it becomes desirable to know precisely how the increase is brought about. It is conceivable, for example, that a greater production of uric acid is induced by the drugs—a result which would scarcely encourage their use in therapy; on the other hand, they may act by actually facilitating the elimination of preformed uric acid from the circulation. That the latter mechanism of action is the real effect of these drugs has been made more than likely by various observations and in particular the very recent American investigations of Folin and Lyman,[4] and Haskins.[5] The former investigators have shown the actual distinct lowering of the uric acid content of the blood after the use of 2-phenylquinolin-4-carboxylic acid in both normal and gouty subjects. Haskins noted the usual increase in the uric acid output attending the use of the drug; and inasmuch as this was followed up by an actual decrease of uric acid in the urinary content, these findings likewise favor the view that the drug merely stimulates the kidneys to abstract from the blood a greater quantity of the purin end-product than it normally would. The subsequent decrease follows as a compensatory consequence.

---

[1] Hämäläinen, J.: Ueber die Entstehungsweise und Bildungsstätte der gepaarten Glykuronsäuren im Organismus, Skandin. Arch. f. Physiol., 1913, xxx, 196.

[2] Society Proceedings, The Journal A. M. A., Nov. 1, 1913, p. 1659.

[3] Nicolaier and Dohrn: Deutsch. Arch. f. klin. Med., 1908, xciii, 331. Dohrn: Ztschr. f. klin. Med., 1912, lxxiv, 5. Plehn: Deutsch. med. Wchnschr., 1912, No. 3. Weintraud: Verhandl. d. Cong. f. inn. Med., 1911, xxviii, 482. Starkenstein: Arch. f. exper. Path. u. Pharmakol., 1911, lxv, 177. Retzlaff: Ztschr. f. exper. Path. u. Therap., 1913, xii, 307, and many others.

[4] Folin, O., and Lyman, H.: Jour. Exper. Pharmacol., 1913, iv, 539.

[5] Haskins, H. D.: The Effect of Atophan and Novatophan on the Endogenous Uric Acid Excretion of Normal Men, ibid., 1913, v, 63.

SNEEZEWEED

Throughout the United States there is found a well-known plant, *Helenium autumnale*, which is frequently grown for decorative purposes, owing to its large showy, yellow flowers that blossom in autumn. The popular names of this plant are numerous, ranging from the more familiar terms sneezeweed, autumn sneezewort, staggerweed—all expressive of a physiologic action—to the more descriptive designations of swamp sunflower, false sunflower, yellow star and ox-eye. The sternutative properties of the plant have long been recognized. Inhalation of the dust or powder of the dried plant or even chewing the leaves causes violent sneezing; and there is an account of an instance in which its use for interior floral decorative purposes was attended with a response of sneezing and weeping on the part of the persons present in the room. *Helenium autumnale* is known to have very marked poisonous effects on cattle, horses and mules, so that it is counted among the stock-poisoning plants of the West. Medicinally an interest in the species arises from the fact that it has been recommended as a therapeutic agent in the guise of a tonic, snuff, febrifuge and diaphoretic, as well as for "colds." A writer of a generation ago says of *Helenium*: "It is known and employed all over the country as a valuable errhine. The whole plant acts as such, but the flowers, especially the central florets, are the more powerful. It may be used in diseases of the head, deafness, amaurosis, headache, hemicrania and congestion of the head and jaws. The shocks of sneezing are often useful in these cases when other remedies hardly avail."[1] As a result of the investigations of Dr. P. D. Lamson[2] in Faust's pharmacologic institute at Würzburg it has now been shown that the pharmacologic behavior of a crystalline active principle, helenin, first isolated by Reeb,[3] corresponds with that of the entire plant. In view of the reputed medicinal uses of the latter, Lamson has considered the therapeutic possibilities of the newly discovered compound, the exact chemical structure of which still remains to be unraveled. Helenin cannot be classed as a protoplasmic poison and it has no noticeable action as an antipyretic. The preeminent property is that of a very active local irritant to mucous membranes in general. This explains the sneezing and lacrimation when the plant products come into contact with the mucous membranes of the nose and eye; the alimentary irritation attended with vomiting and diarrhea when the path of entry is the mouth, and the pain and edema following subcutaneous administration. In cases of lethal poisoning gastro-enteritis is the cause of death when the poison is given orally; after intravenous injection there is failure of the heart.

The difficulty in the absorption of helenin suggests a favorable property in its possible use as a vermifuge, provided an action on intestinal parasites could be demonstrated: but inasmuch as the intense local irritant action on the alimentary mucosa would exclude its use except in very dilute solution, a toxicity for parasites seems unlikely under this condition. As an errhine it is unquestionably active, and Lamson suggests that the plant itself may be a cause of fall hay-fever. Melted lard has been suggested as an antidote to *Helenium* intoxication in the case of cattle poisoned by the plant. In harmony with this it has been found that when oil is given by mouth the local irritant action of the isolated drug on the bowel is markedly alleviated. There is no suggestion of any interesting usefulness in the domain of therapeutic application as the result of the scientific investigation of helenin, but the toxicology of the plant is now made clear.

THE EFFECT OF FEEDING STARCH ON THE SUGAR CONTENT OF THE BLOOD

The question of the sugar content of the blood and its variation under the diverse conditions which arise in health and disease is a timely one. The studies of the past two or three years in this direction have been nothing short of helpful. They have contributed to the development of promising theories and therefore are likely to furnish something of value in the way of practice. For this reason we feel justified in recurring to the subject at frequent intervals.[1] It is tacitly assumed that in health the sugar content is a fairly fixed one so that it may be represented as a sort of physiologic constant. From recent observations in Minkowski's clinic[2] it appears that this is, strictly speaking, not a correct view. Starch is rarely charged with promoting a tendency to alimentary glycosuria, inasmuch as it is assumed to be digested with comparative slowness in contrast with the soluble sugars, and therefore to undergo absorption gradually, without overwhelming at any moment the organs that are entrusted with the storage and conservation of digested carbohydrates. Nevertheless Welz has found that even moderate amounts of starchy foods fed to individuals free from every manifestation of disturbed carbohydrate metabolism may bring about an undeniable and sometimes by no means inconsiderable increase in the sugar content of the blood—an amylogenous hyperglycemia. This is not sufficient to provoke glycosuria, and the figures obtained for the increment in ten normal subjects ranged from 0.04 to 0.08 per cent. of sugar. There are instances now recorded in which the content of blood-sugar was doubled by a meal of 200 gm. ($6\frac{2}{3}$ ounces) of bread together with 100 gm. ($3\frac{1}{3}$ ounces) of potatoes. It is not an incident of the meal *per se;*

---

[1] Bigelow, J. M.: Detroit Rev. Med. and Pharm., 1872, vii, 199.

[2] Lamson, P. D.: The Pharmacologic Action of Helenin, the Active Principle of Helenium autumnale, Jour. Exper. Pharmacol., 1913, iv, 471.

[3] Reeb, E.: Helenium autumnale et son principe actif, Mulhouse imprimerie, J. Brinkmann, 1910.

---

[1] The Sugar Content of the Blood, editorial, THE JOURNAL A. M. A., April 19, 1913, p. 1228. The Blood-Sugar in Human Diabetes, Current Comment, Aug. 9, 1913, p. 418.

[2] Welz, A.: Physiologische amylogene Hyperglykämie, Arch. f. exper. Path. u. Pharmakol., 1913, lxxiii, 159.

for after meat feeding no such "physiologic" hyperglycemia is noted. Evidently the niveau of the blood-sugar is far more responsive to dietary factors than has hitherto been believed. In other words, the physiologic adjustments of the body are singularly sensitive and delicate.

Medical News

COLORADO

Loses Bequest on Technicality.—Because of the ambiguity and vagueness of a paragraph in the will of R. L. Kaplan, millionaire philanthropist of Alabama, a bequest of $70,000 to the Jewish Hospital for Consumptives in Denver has been held null and void by the courts, because there are two Jewish institutions which maintain hospitals in Denver, and the terms of the will do not show clearly for which institution the bequest was intended.

Radium for Use of Physicians.—The first step in the plans of Alfred I. Dupont to use the output of the pitchblende mines for the use of the medical and scientific fraternity of the United States, was taken two weeks ago when he placed in the hands of Dr. Walter A. Jayne, Denver, a quantity of pitchblende ore with which to make experiments in the cure of disease. He also furnished Prof. L. F. Miller of the department of physics of the State School of Mines, Golden, some of the ore for scientific experimentation.

ILLINOIS

New Officers.—Wabash County Medical Association at Mount Carmel, October 29: president, Dr. John J. McIntosh, Allendale; secretary, Dr. John B. Maxwell, Mount Carmel.

Sanatorium for Rock Island.—Drs. Joseph De Silva, Bernard J. Lachner and Louis Ostrom, the commission in charge of the sanatorium project for Rock Island, have purchased for $5,000 a tract of land of nearly eight acres on which to establish a sanatorium. The commission has about $12,000 in hand at the present time. An administration building will first be erected, and other buildings as may be required.

Dental Examination Scandal.—As a result of charges made by a daily paper that a portion of the questions prepared for the examination to be held by the State Dental Board this week had been sold for $50 to a newspaper reporter, purporting to be a candidate for examination, new questions have been prepared and Dr. Peter T. Diamond, accused of having been a party to the sale of questions, has been temporarily removed from the Board of Dental Examiners.

Chicago

Personal.—Dr. Clarence H. Wall, police ambulance surgeon, who was operated on for hernia, October 21, is convalescent. ——Dr. Liston H. Montgomery has been appointed surgeon of the Eastern Division of the Chicago Great Western Railroad, to date from October 10.——Dr. Meyer Nuta has returned from Europe.

Safety Conference.—At a joint meeting of the Chicago Medical Society and the Public Safety Commission held November 5, the addresses made were on the lines of promoting unity between the physicians of the city, the public and the Safety Commission. Prof. Graham Taylor spoke on "The Public Burden of the Insecurity of Life;" Coroner Peter M. Hoffman, on "Safety First;" Dr. Frederick A. Jefferson, on "Suicide;" Dr. Daniel M. Eisendrath, on "Tetanus," and Dr. John D. Robertson, on "Hemorrhage, Concussion, Shock."

Special Gynecological Meeting.—At the special meeting of the Chicago Gynecological Society held in the Florentine Room of the Congress Hotel, November 15, at 8 p. m , papers were read by Dr. Lewis S. McMurtry, Louisville, on "The Foundation of Modern Gynecology and Abdominal Surgery;" by Prof. Dr. Kroenig, Freiburg, Germany, on "The Difference Between Former and Newer Treatments by X-Ray and Radium in Gynecological Diseases;" by Prof. Dr. Gauss, Freiburg, Germany, on "The Report of the Result of Radiotherapy in Gynecology;" by Dr. Thomas S. Cullen, Baltimore, on "The Umbilicus and Its Diseases," and by Dr. Robert L. Dickinson, Brooklyn, N. Y., on "Efficiency Engineering as Applied to Gynecological Surgery."

Exposure of Medical Quacks.—The Chicago *Tribune*, as the result of investigation of a group of firms and individuals operating in Chicago as medical specialists and preying on the ignorance of their patrons, suggests the advisability of further investigation by the police department. The investigation has been carried on for a considerable time with special reference to the advertising specialists who claim to cure "diseases of men." The firms and individuals thus far investigated are as follows:

"Professor Ehrlich," 303-304, 145 North Clark Street, said to be conducted by the Drs. Code.

Dr. Edward N. Flint, 322 South State Street.

Dr. Isaac Walter Hodgens, 35 South Dearborn Street.

Dr. Howe & Co., 120 North Dearborn Street, with Dr. Ward in charge.

Dr. Francis Leaverett Sweeny, 63 West Randolph Street.

Dr. Lewis E. Zins, 183 North Clark Street.

Dr. Bernard M. Ross, fifth floor Crilley Building.

Atomo-Radio Co., 48 West Randolph Street, Dr. Lawhon in charge.

At the City Council meeting October 28 an order was passed by unanimous vote calling on the corporation counsel's office to submit to the council at its next meeting a scheme whereby advertising medical swindlers can be driven from the city.——The State Board of Health has been asked by Gov. Dunne to present a statement concerning the legal status of these quacks.——At a meeting of the publishers of the Chicago Foreign Language Newspaper Publishers October 29, a resolution was adopted that the present campaign of the Chicago *Tribune* against the quack doctors who have been preying on the weak and unfortunate of the community so long a time unmolested, is entitled to the support and cooperation of all reputable journals.

IOWA

Hospital Opened.—The new miners' hospital, Albia, was formally opened October 27. Dr. T. Ernest Gutch, Albia, is in charge of the hospital, which is steam-heated and has accommodations for nine patients.

Public Health Education.—Drs. Mathew N. Voldeng, Cherokee, Henry Albert, state bacteriologist, Iowa City, Lenna L. Means, Des Moines, Jeannette Throckmorton, Chariton, and Paul E. Gardner, New Hampton, have been appointed members of the state societies' committee.

Sanatorium Notes.—The old Sac and Fox Indian School near Toledo is to be used as a tuberculosis sanatorium for Indian children.——The Associated Charities of Des Moines has decided to dispose of the Ridge Camp property. The tuberculosis hospital was discontinued in September.——The board of supervisors of Polk County has appropriated $5,000 for the erection at the County Farm of a hospital for the care of the tuberculous.

Physicians Win Suits.—In the case of Dr. Erasmus E. Birney, Nora Springs, charged with having performed a criminal operation resulting in the death of Miss Myrtle Irish, the jury sent in a unanimous verdict of acquittal.——In the suit of Dr. Soeren W. Staads, Sioux City, against Hollister Simmons, for $300 for an operation performed on Mrs Simmons, the defendant is said to have defaulted and judgment was given Dr. Staads for the amount claimed.

Personal.—Dr. Elijah M. Heflin, Calmar, is reported to be seriously ill at the home of his brother in Grand Island, Neb. ——Dr. Oliver J. Fay, Des Moines, has been appointed district surgeon for the Chicago and Northwestern System.——Dr. William R. Whiteis, Iowa City, has been appointed chief surgeon of the University Hospital, Iowa City, and also acting professor of surgery in the medical department, vice Dr. William Jepson, Sioux City, resigned.——Dr. Carroll C. Snead, Newton, is critically ill, the result of a cerebral hemorrhage. ——Dr. William D. Christy, Creston, is reported to be ill with cerebral hemorrhage.

New Officers.—Dallas-Guthrie County Medical Society at Panora, October 16: president, Dr. Samuel P. Free, Perry; secretary-treasurer, Dr. John V. Littig, Davenport (reelected). ——Council Bluffs Medical Society: president, Dr. William P. Hombach; secretary, Dr. John S. McAtee.——Southwestern Iowa Medical Society at Creston: president, Dr. B. L. Eiker, Leon; secretary-treasurer, Dr. Claire H. Mitchell, Weldon.——Bremer County Medical Association at Waverly: president: Dr. F. A. Osincup, Waverly; secretary, Dr. Ennis, Sumner.——Chickasaw County Medical Association in New Hampton, November 3: president, Dr. Alexander D. McKinley, Lawler; secretary-treasurer, Dr. Paul E. Gardner, New Hampton.——

Scott County Medical Society at Davenport, November 4: president. Dr. Peter A. Bendixen; secretary, Dr. John V. Littig, both of Davenport. The society adopted a resolution indorsing the Chicago *Tribune* for its fight on medical quacks.

MARYLAND

Work Begins on Hospital Annex.—Work was begun October 14 on a three-story annex to the Union Hospital, Elkton.

Die in Sanitarium Fire.—Two patients in the Edgemere Sanitarium, Govans, near Baltimore, were burned to death October 14, in a fire which practically destroyed the building. A nurse received serious burns while assisting patients to escape.

Personal.—Dr. P. Edward Stigers, Hancock, who has been ill with fever at the City Hospital, Martinsburg, is reported to be convalescent.——Dr. Oscar Fisher, Frostburg, was severely injured October 13 when his automobile overturned near Eckhart.——Dr. John E. Legge, Cumberland, has returned from abroad.

Baltimore

State Board Moves.—The State Board of Health, which has been located on East Franklin Street for several years, has moved to the Frank Brown Building on Saratoga Street. The board will occupy the second and third floors of the building.

Foreign Visitors.—Dr. Adolph Schmidt, professor of medicine in the University of Halle, Germany, had conferred on him the honorary degree of LL.D. by the University of Maryland, Virginia, November 11.——Dr. A. Loheenolt, Halle, Germany, is making a study of the hospitals of the city.

Personal.—Dr. Harry W. Plaggemeyer, who has taken charge of one of the departments of the Detroit General Hospital, was given a luncheon by fourteen Detroit physicians October 21.——Dr. Nathaniel Garland Keirle celebrated his 80th birthday anniversary October 10.——Dr. Adolph Meyer has returned from abroad.——Dr. Benjamin Swint has resigned as resident physician at St. Joseph's Hospital and has been succeeded by Dr. Edward F. Johnson.

MASSACHUSETTS

New Officers.—Holyoke Medical Association, October 7: president, Dr. John J. Carroll; secretary-treasurer, Dr. Fred H. Allen, both of Holyoke.

Addition to Hospital.—A building not to exceed $15,000 is to be erected by the City of Boston and then cared for by the trustees of the Newton Hospital. The building will be a part of the present hospital group.

Personal.—Dr. David Fisher, Atwater, said to be the oldest alumnus of Yale, celebrated his 96th birthday anniversary at Springfield, recently.——Dr. John R. Slattery, South Boston, has been honored by the pope by being made a Knight of the Holy Sepulchre.

Academy Opens Clubhouse.—Nearly 500 physicians and their families of Western Massachusetts were present at the opening of the new home of the Springfield Academy of Medicine on State Street. A mansion, which was purchased several years ago, has been transformed into a clubhouse. The first formal meeting of the society in its new home was held October 14.

Fitz Memorial Meeting.—In the medical school buildings of Harvard University, Boston, there will be held on November 17 at 8:15 o'clock, a memorial meeting to the late Reginald Heber Fitz, professor emeritus of the theory and practice of physic. Addresses will be made on that occasion by Prof. W. W. Keen, Philadelphia; Charles W. Eliot, president emeritus of Harvard University; Dr. Henry P. Walcott, chairman of the State Board of Health; Dr. William Sydney Thayer, Baltimore, and Dr. William T. Councilman of Harvard University. The general medical public is invited.

Changes in Medical Corps.—The following changes of assignments of officers of the medical corps, M. V. M., are announced: Major John D. R. Woodworth is relieved from command of the Hospital Corps, but will be in command of Field Hospital, No. 1, until otherwise ordered; Capt. George F. Keenan is assigned to command Ambulance Company No. 1; Lieuts. Oscar Dudley and Leonard W. Hassett are relieved from duty with Field Hospital No. 1 and assigned to duty with Ambulance Company No. 1, and Lieuts. George L. Howland and Charles R. Morgan are relieved from duty with Ambulance Company No. 1 and assigned to duty with Field Hospital No. 1.

MINNESOTA

New Officers.—Blue Earth Valley Medical Society, in Blue Earth, October 23: President, Dr. Peter F. Holm, Wells; secretary, Dr. John A. Broberg, Blue Earth (reelected).

Placarding for Tuberculosis.—The State Board of Health has passed a rule authorizing and directing local health officers to placard premises where tuberculosis exists if proper precautions are not being taken by the patient or those in charge of the patient to prevent contagion.

Personal.—Dr. Carl J. Holman, Mankato, is under treatment at the Emmanuel Hospital for fractured ribs and an injury to the leg sustained in a fall at Valley Grove, recently.——Dr. Henry E. Michelson of the staff of the McIntyre Hospital, Virginia, has been appointed assistant health officer of Virginia.——Dr. Joseph Nicholson, Brainerd, has been elected chief surgeon of the Minnesota Central Railway Company.——Dr. O. A. Oredson, Duluth, has sailed for Europe.

Sanatorium Notes.—Renville and Watonwan counties have appropriated $5,000 and $6,000, respectively, for the construction and maintenance of county tuberculosis sanatoriums.——Otter Tail County Tuberculosis Sanatorium at Otter Tail Lake was formally opened October 30. The institution is admirably arranged and equipped and has accommodation for thirty-seven patients. Fourteen applications for admission have thus far been received.——Lincoln, Murray and Lyon counties have agreed to erect a central sanatorium.——Goodhue County has appropriated $15,000 to be used in the erection and equipment of a tuberculosis sanatorium. To this will be added a similar amount given by the state.

MISSOURI

Personal.—Dr. E. W. Caveness has resigned as superintendent of the Kansas City Municipal Farm, but will continue as physician of the institution.——Dr. William P. Simpson, Chilicothe, was seriously injured by a fall October 23.——Dr. John W. Dean, for forty-five years a practitioner of Maryville, has retired from practice.——Drs. Woodson Moss, James Gordon, Joseph E. Thornton and David H. Dolley have resigned as members of the Board of Health of Columbia.

St. Louis

New Officers.—St. Louis Pediatric Society: president, Dr. Jules M. Brady; secretary-treasurer, Dr. T. C. Hemplemann.

Building Presented to Hospital.—The Barnard Free Skin and Cancer Hospital has been presented by Mrs. Barnard with the building immediately east of the hospital building, to be used as a home for nurses. The house will be known as the Mrs. George D. Barnard Home for Nurses.

Personal.—Dr. Frederick A. Baldwin has been appointed chief of the state department of bacteriology, vice Dr. Downey L. Harris, resigned to accept the position of professor of hygiene and preventive medicine in the St. Louis University Medical School.——Dr. C. W. Scharff has been appointed resident physician at the City Hospital.——Dr. Daniel C. Goodman was injured in an automobile accident in New York City, October 12.——Dr. Frank Wild suffered a fracture of the right shoulder October 9, when the tongue of a wagon was driven through the window of a street-car in which he was sitting.——Dr. R. Lilburne Byrd is under treatment in the Mullanphy Hospital on account of an infection of the jaw and neck.

NEW YORK

Pediatric Club Formed.—Physicians of Syracuse, Utica and Oswego have formed a pediatric club with membership limited to fifteen.

New Officers.—Suffolk County Medical Society at Riverhead October 30: president, Dr. Silas K. Corwith, Bridgehampton; secretary-treasurer, Dr. Frank Overton, Patchogue.

Honors Dr. Archambault.—The Medical Society of the County of Albany at its meeting in Cohoes, October 22 adopted resolutions eulogizing the life and medical work of the late Dr. Joseph L. Archambault.

New York City

Personal.—Dr. H. Sheridan Baketel, Manhattan, and Dr. Philip M. Schaffner and Robert I. Bull, Brooklyn, have been appointed instructors in genito-urinary diseases in Long Island College Hospital, Brooklyn.

NORTH CAROLINA

Prescriptions of Alcohol.—The report of the Asheville police inspection of physicians' prescriptions for alcoholic intoxiin numbers it stands at the head of all medical organizations of the world; moreover, that the papers and proceedings of the Association are disseminated all through the profession through the avenue of The Journal.

The presidential address by Dr. George Emerson Brewer, New York City, concerned "A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy."

Dr. Harvey Cushing, of Boston, reported 156 cases of operations on the gasserian ganglion with two fatalities, which occurred in the earlier cases.

The paper was discussed by Dr. John B. Murphy, Chicago.

FOREIGN

Death of Klebs.—Edwin Klebs, the veteran pathologist and bacteriologist, died at his home in Dortmund on October 21. The passing of this eminent man, once a professor of pathology in the Rush Medical College, removes one of the last of the original champions of the bacterial theory of infection. A native of Königsberg and a cousin of Leyden, Klebs had followed Virchow's lectures at Würzburg and became his assistant at Berlin in 1861. After attaining his professorship at Bern in 1866, his scientific career was that of a péripatetic. He held in succession the chairs of pathology at Würzburg (1872), Prague (1873), Zurich (1882), Chicago (1896), and during his period of retirement resided variously at Carlsruhe, Hannover, Berlin, Lausanne and Dortmund. His treatises on pathology (1869-76), in particular the larger *Allgemeine Pathologie* (1887-89), are highly esteemed by the masters of this science as solid thorough-going works of enduring value. But he will be best remembered in the future as the pathbreaker and the precursor. His name is permanently associated with the discovery of the diphtheria (Klebs-Loeffler) bacillus, which he was the first to see and to recognize as the cause of the disease (1883), while Loeffler tried the organism out by Koch's postulates and dissociated it from the bovine and avian varieties (1884). Not only did Klebs see the typhoid bacillus before Eberth (1881), but he antedated Koch by seven years in the bacteriologic investigation of the traumatic infections (1871) and also made solid cultures before him. Klebs was the first to investigate the bacteriology of gunshot wounds (Franco-Prussian war, 1871-72), was on the threshold of the theory of filterable viruses in his studies of anthrax (1871), made some of the initial studies on mycotic and experimental endocarditis (1875), first produced bovine infection of perlsucht by feeding with milk (with Gerlach, 1873), and, in 1900, he first attempted to treat tuberculosis with the bacilli of cold-blooded animals, the species selected being the sloe-worm bacillus *(Blindschleichenwurmbacillus)*. Indeed, Klebs will always be recognized in medical history as having done most to get the pathologists away from the solidist views of Virchow by emphasizing the fact that postmortem findings are, after all, only end results and that true causation of infectious diseases is to be sought in parasitic agents coming from the outside world. A broad-browed, broad-minded savant of the Prussian type, it was his temperamental peculiarity to fling himself into the "imminent deadly breach" and break many a pathway, leaving it to others to follow up and complete his work.

CANADA

Personal.—Dr. Joseph N. Roy, Montreal, has gone on a pleasure trip to Argentine, Peru and Chili.——Dr. J. Y. Ferguson, Renfrew, Ontario, who has been in Japan for several years as a medical missionary, is home on furlough.——Dr. F. F. Carr Harris, Toronto, has entered the missionary service at Honan, China.

Hospital News.—Montreal has just started erecting a new Foundling and Baby Hospital. Up to May 1 last the citizens contributed $42,000 for the purposes of such hospital, and as Colonel Burland and his sisters had agreed to duplicate any amount raised from the citizens, the total collection amounted to $85,000, sufficient to warrant the hospital authorities in commencing building operations. The new institution will provide for several times the accommodation of the old one, which was forty-two patients. A milk station will be run in connection with the hospital and a special and prominent feature will be a school of instruction in the caring of babies. The foundling hospital was started twenty-two years ago, and the death rate during the first year was 80 per cent. Last year the death rate was 13½ per cent. During the six months just past but one baby died out of fifty, while 400 were refused admission owing to lack of room. The hospital has demonstrated that much good work can be accomplished along this line in preventing infant mortality in Montreal.

PARIS LETTER

(*From Our Regular Correspondent*)

Paris, Oct. 31, 1913.

Lucas-Championnière and Prehistoric Trephining

Dr. Lucas-Championnière, whose death I mentioned in my previous letter and who was the author of important works on trephining guided by cerebral localizations, was interested in the study of prehistoric trephining. This was the subject of the lecture which he was to have given October 25, as a delegate of the Académie des Sciences, at the annual public session of the five academies. In this, after reviewing more or less fantastic hypotheses of the reason for this practice, he adopted a much more simple and plausible interpretation. Among all primitive peoples fractures of the skull are frequent. When splinters of the bone are driven into the head, men are often led to pick out these splinters for the sake of curing the terrible pain of intracranial pressure. Gradually, having very crude ideas of the relation of cause and effect and no ideas of anatomy, primitive man is led to open the skull of other subjects who have similar pains. Centuries confirm his practice of intervention. Exact and repeated observations lead him to fix on the technic of opening the skull for those pains which characterize intracerebral tension in the course of various diseases. This fact is the less surprising because savage or barbarous peoples have not the same aversion to surgical operation as civilized persons. Pronounced insensibility, habituation to traumatism, the resignation of the patient overcome with pain, and even curiosity, contribute to make savages accept an operation with less fear than civilized persons. Such distrust as they may have felt probably disappeared the more easily, because, whatever may be thought of it by surgeons who lose their patients by purulent infection, the mortality was very low. Recovery and relief from pain was the rule. It is still so among the Kabyles. During the visit of Lucas-Championnière to Biskra thirty years ago, a man showed him four perforations in his own head, and gave him exact details of the operation, in which he had great confidence, for, as he said, his brothers and himself had been trephined twelve times by their own father. These operations are performed especially for terrible pains of the head. This man said to Lucas-Championnière that if the latter would stay three days longer, he would certainly be able to find some one to perform a trephining operation before him.

The Disadvantages of White Flour

At one of the last sessions of the Société de thérapeutique, Dr. Monteuuis read a paper showing the superiority of old-fashioned flour over patent process flour. The first is merely wheat ground fine, in which 20 per cent. of the envelopes are removed in the form of coarse bran. This is the flour which makes natural bread, farm bread, old-fashioned bread. In "patent" flour there is removed from the wheat not only the coarse bran but the fine bran and the germ. The first layer of the wheat berry, the richest in all points of view, is entirely removed and used for feeding cattle. The second layer is partially removed and used for brown bread. Fine white bread contains only the inner portion; that is to say, about one-half the grain is sacrificed, and this waste costs France 400,000,000 francs ($80,000,000) a year. From the point of nutrition, the old-fashioned flour is not only superior but it is better digested and is the mineralized food par excellence.

The Twenty-Sixth Annual Meeting of French Surgeons

This meeting was held in Paris, October 6 to 11, under the presidency of Dr. E. Kirmisson, professor of clinical surgery of the diseases of children in the Faculté de mèdecine de Paris. His opening address was on the subject of orthopedic surgery.

TREATMENT OF HEAD WOUNDS MADE BY SMALL PROJECTILES

Two papers were devoted to it, one by Dr. H. Billet, military physician, on wounds made by war projectiles, the other by Dr. A. Demoulin, surgeon of the hospitals of Paris, who considered only the wounds of civil life.

In war the indication for operation is hemorrhage, or signs of cortical irritation. In uncomplicated perforation in which the projectile lodges in the head, the general rule is to refrain from operation, but it is necessary to watch over the patient carefully, for often an operation is warranted later. Tangential wounds, on the other hand, imperatively demand active and early operation, even in the frequent cases in which the symptoms are not alarming, for secondary infection here is the rule. In fact, statistics prove that the mortality is 20 per cent. if operation is not performed. Operation ought to be performed only when facilities for operation with perfect asepsis are obtainable. Secondary operation is necessary under three circumstances: (1) to ward off infection (the ordinary case); (2) to extract a projectile or foreign body; (3) to treat one of the late complications which darken the prognosis.

In civil life the usual wounds are those of automatic revolver bullets. If the patient has just been wounded, the wound should not be explored, and the region of the wound should merely be disinfected with tincture of iodin and dressed aseptically. When conditions permit of aseptic surgery, preventive trephining should at once be performed, the lesions should be followed step by step, the focus cleansed, splinters of bone removed, and the bullet extracted; but one should not exceed the limits of the wounded nervous zone. When, after preventive trephining, lumbar puncture shows infection of the cerebrospinal fluid, the fluid should be evacuated daily, and if the symptoms do not tend to disappear, the skull should be opened in order to drain the subarachnoid space. When the bullet has not been removed and becomes troublesome, operation is expressly indicated; but if the projectile is broken into a number of fragments which apparently cannot be removed by a single orifice, trephining operation is contra-indicated in spite of the seriousness of the symptoms.

Professor Lejars of Paris agreed with Dr. Demoulin in thinking that in non-military wounds of the head caused by small projectiles, even though they appear to be benign, it is always necessary to operate. Professors J. Vanverts and Auvray, *agrégés* at Lille and at Paris, respectively, also agreed; but the latter believed that the operation ought to be as simple as possible, and the brain not compressed by a tampon under the pretext of drainage. One drain is enough. Dr. Oser of Vienna, on the other hand, did not believe that it was necessary to operate in all cases, but only if clinical symptoms were present. Dr. Peugniez of Amiens remarked that care should be taken not to disturb the skull after roentgenoscopy, for the projectile may become displaced in the course of operation.

Dr. Willems of Ghent, who was on the ambulance staff in Servia, said that the Balkan War had demonstrated the value of the evacuation of the wounded all the more in that country where there were no means of rapid communication, and the distance of the battle-fields was great. Most of the wounded who were thus removed were benefited. Professor Delorme, medical inspector general of the service of military hygiene, however, did not agree, at least so far as head wounds were concerned. He thought it better to operate in the ambulance or near the battlefield. This also was the opinion of Dr. LeFort, professor *agrégé* at the Faculté de médecine de Lille, who observed that in the Balkans soldiers wounded in the head and sent to the rear without operation arrived there too late to be operated on.

An Atoxic Antigonococcic Vaccine

At a recent session of the Académie des Sciences, Dr. Charles Nicolle, director of the Pasteur Institute of Tunis, and Dr. L. Blaizot presented an interesting paper on an atoxic antigonococcic vaccine which they had prepared. During the seven years that vaccine treatment of gonorrhea and its complications has been attempted, this method has not yet won the favor of the medical profession. Experimenters up to the present have been unable to surmount the difficulty presented by the toxicity of vaccine. Nicolle and Blaizot have succeeded in completely suppressing the toxicity of antigonococcic vaccines while obtaining a stable product which preserves its therapeutic properties indefinitely just as serum does. Their method is applicable to other microbes. They are reserving the publication of the method until their experiments shall have been finished. The curative power of the atoxic vaccine is considerably increased. When inoculated in small doses, like other vaccines, it produces a much more rapid cure. In larger doses it shows a greater efficacy without causing the least local or general reaction. Its efficacy is shown by the following statistics: Twenty-four cases of gonorrheal ophthalmia have all resulted in cures in from three to ten days, the inoculations being repeated every day or every other day; 20 patients with gonorrheal orchitis were cured by from four to six inoculations repeated every other day; 3 patients with gonorrheal rheumatism were cured after from two to eight inoculations repeated every two or three days; 127 patients with acute or chronic urethritis were cured rapidly after seven or eight inoculations.

BERLIN LETTER

(*From Our Regular Correspondent*)

Berlin, Oct. 24, 1913.

Personal

Professor Steyrer of Greifswald has been called as director of the medical clinic in Innsbruck as successor of Professor Schmidt, who has been called to Prague.

Professor Michaud of Kiel has been appointed in place of the deceased Bourget, as professor and director of the medical clinic in Lausanne.

Annual Meeting of German Neurologists

At the annual session of the Society of German Neurologists, held under the presidency of Professor Oppenheim of Berlin early in October, Professor Lewandowsky of Berlin made a report on a collective investigation regarding the position of neurologists in the universities, hospitals, etc., and called attention to the small number of professorships for this specialty and of clinics available for neurologists, and noted the fact that in this respect Germany is excelled by Russia and other countries.

Ehrlich, v. Wassermann and the Vienna pharmacologist, Hans Horst Meyer, were elected honorary members of the association.

The Erb medal, which is awarded every three years for merit in the field of nerve therapy, was received this year by the neurologist, Docent Dr. Barany of Vienna.

DEGENERATIVE PROCESSES IN THE NERVOUS SYSTEM

This was the first subject on the program and it was presented by Professor Alzheimer of Breslau. Elements of the central nervous system which have degenerated, are converted into simpler chemical products by the help of the cells of the connective tissue, and are removed from the nervous tissue. This decomposition (*Abbau*) is accomplished in various ways according to the form of the injury and the extent of the nervous tissue injured. Four forms of decomposition processes can now be distinguished: (1) the mesodermal form of decomposition, which is produced by the cells of the connective tissue, in case a circumscribed part of the nerve tissue together with connective tissue is destroyed (wound, hemorrhage, etc.); (2) the ectodermal form of decomposition by elements of the glia, either (*a*) by the glial granular cells in case of the destruction of the medullary sheath without injury to the neuroglia (secondary degeneration, disease of the tracts in the cord, etc.), or (*b*) by the action of ameboid glia cells, especially in severe infections and intoxications, or (*c*) by the glia cells present without the new formation of special kinds. In addition to these, there are other forms of decomposition which have not yet been fully explained. The study of the decomposition processes with the new methods introduced by Alzheimer into the histopathology of the nervous system, have very markedly increased the possibility of recognition of the anatomic bases for mental and nervous diseases; it permits the recognition of the destruction of separate nervous elements, even in cases in which with the older methods lesions could not be demonstrated. The recognition of the connection between various striking histologic features as stages of the same pathologic process, and estimation of the age of pathologic lesions are also made possible by the application of the newer methods.

AMAUROTIC IDIOCY OF LATE INFANCY WITH CEREBELLAR SYMPTOMS

Professor Bielschowsky of Berlin discussed this form of family amaurotic idiocy of which hitherto not much has been known. It assumes a peculiar position because in the clinical picture and in the pathologic findings the indications of hereditary cerebellar ataxia are pronounced in addition to the typical pathologic signs of amaurotic idiocy.

SYPHILIS IN CONNECTION WITH TABES AND PARALYSIS

According to Professor Erb of Heidelberg, metasyphilis is to be regarded, in view of recent investigations, as a genuine syphilitic disease, although of a peculiar character. One of the chief problems consists in the investigation of the biology of the *Spirochaeta pallida* (different races, the changes which the same undergo in repeated passage, by antigens, special predisposition of the host, etc.). The occurrence of nervous syphilis can, with little doubt, be referred to the neurotropic peculiarities of certain races of spirochetes. With reference to the pathogenesis of gliovascular and purely degenerative changes there are still differences of opinion. For the former, a direct action of the spirochetes is probable.

STUDY OF PAIN, ESPECIALLY AMONG THE NEUROTIC

Oppenheim of Berlin called attention to the fact that in diseases of the glands of internal secretion, such as exophthalmic goiter, for instance, pain may precede the other symptoms for years. This can probably be referred to a diminished or increased secretion of some gland or glands, or to the production of chemically irritating materials (hormones). The same explanation may apply also to the algias (painful conditions) of the menopause, of paralysis agitans and many acroparesthesias.

The pains in hysteria and neurasthenia have various origins. There are psychic forms (psychalgias) both ideogenous, as, for instance, the fear of cancer, as well as emotional; generally these two factors are united. More frequent than the pure psychalgias are forms of pain which have a physical basis (local irritations, fatigue, traction on muscles, gastro-intestinal disturbances, gout, diabetes, etc.); but the hyperesthesia, focusing of the attention, persuasion and increased introspection of the morbidly nervous transform their slight temporary pains into permanent painful affections. An essential rôle is played in these cases also by the vasomotor diathesis with its tendency to cramps of the vessels, and further the inherited transmission of pains in the direct or transferred form.

Von Frankl-Hochwart of Vienna called attention to the fact that pains of psychic origin do not recur in dreams as is the case when they proceed from an organic basis. Dubois of Bern stated that he has been able sometimes to relieve and cure pain by his method of explanation and persuasion, even in cases of pain apparently permanently rooted for fifteen years, which had defied all other methods. On the other hand, Trömner insisted that there is much of suggestion in the action of Dubois' method, which the latter energetically denied. The convincing of the person, persuading him to see the matter in its proper light, are the effectual elements, and the personality cooperates with it. With suggestion, as Dubois emphasized, it is necessary to instill into the patient opposing ideas. Oppenheim, in conclusion, insisted that the method of Dubois of simple explanation and instruction is not sufficient in many cases of neurosis.

MENINGITIS WITH APPARENTLY NORMAL CEREBROSPINAL FLUID

In the febrile diseases of children, Professor Förster of Breslau has frequently observed a severe clinical picture of meningitis without change in the lumbar-puncture findings. After the disappearance of the meningitic symptoms there remained a cerebellar disturbance of the gait which also after weeks and months completely disappeared. The cases were in tuberculous children.

EXOPHTHALMIC GOITER IN MEN

Mendel and Tobias of Berlin discussed Basedow's disease in men. Men are less frequently affected with this disease than women (in the proportion of 1:6), and in general at a later age. The thyroid may be little, if any enlarged, but the sexual functions, in contrast with women, are rather diminished; early arteriosclerosis frequently occurs as a complication and pronounced psychoses are more common in men. Internal therapy is, as a rule, sufficient.

SERODIAGNOSIS IN NEUROLOGY

Golla of Breslau gave the results of Abderhalden's serodiagnosis in brain and spinal-cord diseases. The serum from fifty-eight persons with organic brain or spinal-cord disease was investigated. In a number of these, the process showed a fermentative destruction of the nerve tissues. This condition was almost constant in paralysis, in which, in contrast to other organic processes, other organs also were digested.

Alcohol and Responsibility in the Academic Course

The faculty of the University of Bonn have posted the following notice on the blackboard: "Among the cases of discipline coming before us for decision, we again and again have the experience that the students present the excuse that they were drunk or so drunk that they did not know what they were doing. Some recent instances of this impel us to give notice that we are not accustomed to give any weight to this form of defense in general, and do not recognize drunkenness as a ground of extenuation. The students of the university fortified by a long course of training in character, must be expected to have reached such a degree of self-control and strength of will that they do not lose control of their sense, and of their actions by excessive use of alcohol. If the student acts contrary to this duty, he must bear the consequences."

Marriages

Charles S. Ryttenburg, M.D., Port Chester, N. Y., to Miss Anita Lazaron of Mount Auburn, Cincinnati, October 27.

William Johnson Bass, M.D., Paducah, Ky., to Miss Charlotte Cecelia Dean of Henderson, Ky., October 22.

John George Mueller, M.D., to Miss Margaret Corridan, both of Iowa City, at Des Moines, Ia., October 27.

Augustine Charles Luhr, M.D., St. Marys, Pa., to Miss Mary Gertrude Wall of Pittsburgh, October 15.

Charles Pulford Forward, M.D., Dubuque, Ia., to Miss Myrtle Anne Gilstrap of St. Louis, June 29.

Arthur Preston Flowers, M.D., to Miss Margaret Louisa Ashford, both of Atlanta, Ga., November 8.

Robert Turner, M.D., Paris, France, to Miss Marjorie Pope of Brookline, Mass., in Paris, October 23.

Marie Kirby Hopkins, M.D., Gloversville, N. Y., and Walter Humphrey, in Castile, N. Y., October 20.

Adolph E. DeTuncq, M.D., Scandinavia, Wis., to Miss Marvel Drewry of Milwaukee, September 20.

Samuel Caldwell Benedict, M.D., Athens, Ga., to Mrs. Kate Taylor of Macon, Ga., October 23.

George William Prichard, M.D., Omaha, to Miss Ina Fogelstrom of Wahoo, Neb., October 29.

Charles William Pace, M.D., to Miss Effie Coppage, both of Hot Springs, Ark., October 12.

William Henry Tippie, M.D., to Mrs. Anna R. Ullery, both of Terre Haute, October 25.

Henry Stine Weigle, M.D., Harrisburg, Pa., to Miss Esther Noble of Muncy, Pa., October 25.

Robinson Bosworth, M.D., St. Paul, Minn., to Miss Russell Sprake of Chicago, November 3.

John Robins Blair, M.D., to Miss Ethel May Smith, both of Richmond, Va., October 22.

John Guirley Missildine, M.D., to Miss Sara Taft, both of Parsons, Kan., October 15.

Archibald B. Elkin, M.D., to Miss Amelia Sturgeon, both of Atlanta, Ga., October 21.

John H. McCool, M.D., to Miss Katharine Blackwell, both of Indianapolis, October 15.

Charles M. George, M.D., to Miss Mary E. Yorks, both of Detroit, Mich., October 28.

Deaths

Charles McBurney, M.D.—Four weeks ago The Journal chronicled the death of Dr. Reginald Heber Fitz, who called attention to the pathology of appendicitis and thus opened the way to a clearer understanding of the disease and the possibility of its cure by surgical means. To-day we note the death of Dr. Charles McBurney, whose operative work in appendicitis brought him into great prominence during his years of active work, and whose recognition of a point of localized tenderness in appendicitis has made McBurney's point known the world over.

Charles McBurney was born in Roxbury, Mass., Feb. 17, 1845, the son of Charles and Rosine Horton McBurney. He received his academic training in Harvard, from which he received the degree of A. B. in 1866, and that of A. M. in 1869. His medical course was taken at the College of Physicians and Surgeons, Columbia University, New York City, from which he was graduated in 1870. His teaching work commenced in his alma mater in 1872 as assistant to and demonstrator of anatomy from 1872 to 1889. During a portion of this period from 1878 to 1882, he was lecturer on anatomy of the nerves and surgery. In 1889 he was made professor of surgery; three years later professor of clinical surgery, and in 1907 he became emeritus professor of surgery.

During his forty years of practice in New York City he was a member of the visiting or consulting staff of many hospitals. He was a Fellow of the American Medical Association, an honorary Fellow of the Royal College of Surgeons, Edinburgh, a member of the New York Academy of Medicine, the Surgical Society of Paris, the Roman Medical Society, the Medical and Surgical Society of Constantinople, and many other learned bodies. His first contribution to the medical literature of appendicitis appeared in 1889 when he published an essay on "Experience With Operative Interference in Cases of Disease of the Vermiform Appendix."

For several years Dr. McBurney had been retired from practice and resided in Stockbridge, Mass. From his home in this place he was summoned to Buffalo in 1901 as a consultant when President McKinley was shot.

He died suddenly from heart disease at the home of his sister in Brookline, Mass., November 7, aged 68.

In addition to his work in appendicitis which brought to American surgery recognition from the entire world, Dr. McBurney was a pioneer in aseptic technic.

Jesse S. Myer, M.D. Marion-Sims College of Medicine, St. Louis, 1896; a Fellow of the American Medical Association; lecturer on physiology and clinical chemistry and microscopy in St. Louis University from 1898 to 1902; assistant instructor and lecturer on clinical chemistry and microscopy from 1901 to 1912 and associate in medicine thereafter; visiting physician to the St. Louis City Hospital; associate physician to the Jewish Hospital and physician to out-patients in Washington University Hospital; author of a biography of Dr. William Beaumont; died at his home in St. Louis, October 29, from leukemia, aged 40.

Charles Buckner Hardin, M. D. Kansas City (Mo.) Medical College, 1881; Bellevue Hospital Medical College, 1883; a Fellow of the American Medical Association; formerly president of the Jackson County Medical Society and the Kansas City Academy of Medicine; for several years professor of hygiene and state medicine in the Medico-Chirurgical College of Kansas City; died at his home August 31, aged 56.

Samuel Hughes Chute, M.D. Medical College of Ohio, Cincinnati, 1851; since 1857 a resident of St. Anthony and Minneapolis, Minn.; supervisor of the poor and city treasurer of St. Anthony; a member of the city council of Minneapolis for several terms, and a member and president of the board of education; died in St. Mary's Hill Sanitarium, Milwaukee, October 12, aged 83.

Oscar Chrysler, M.D. Detroit College of Medicine, 1892; a Fellow of the American Medical Association; assistant surgeon at the National Soldiers' Home near Milwaukee, Wis., until 1902, and since that time chief surgeon of the institution; was killed in an explosion that wrecked the sterilizing apparatus in the basement of the hospital, October 29, aged 48.

Isaac N. Snively, M.D. Jefferson Medical College, 1863; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania, and the Western Maryland Railroad Surgeons' Association; local surgeon of the road at Waynesboro, Pa.; died at his home October 31, from cerebral hemorrhage, aged 74.

Henry Archer Mettauer, M.D. Randolph-Macon College, Prince Edward Court House, Va., 1849; a pioneer practitioner of Macon, Ga., where he had practiced for more than sixty years; one of the old Southern school of gentlemen; a family doctor, universally beloved; died at his old home in Farmsville, Va., October 22, aged 87.

James Thomas Harris, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1877; a member of the Medical Society of the State of California; at one time coroner and physician of Santa Clara County, and for several years city physician of San Jose; died at his home October 31, from cerebral hemorrhage, aged 75.

Hugh Logan, M.D. Washington University, St. Louis, 1872; a Fellow of the American Medical Association, and a pioneer physician of Eastern Oregon; local surgeon for the Oregon-Washington Railway and Navigation Company at The Dalles for several years; died at his home, October 27, from pneumonia, aged 63.

Edith Earle Eayre Keisker, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1908; a medical inspector of public schools of Philadelphia who was making a study of scarlet fever in the municipal hospital, contracted the disease, and died in that institution, October 24, aged 35.

Stewart L. Henry, M.D. Tulane University, New Orleans, 1866; for forty years a practitioner of Orleans Parish, and for several terms a member of the state legislature; a surgeon of U. S. Volunteers during the Civil War; died at his home in Carrollton, New Orleans, October 11, aged 79.

Samuel Senseny Huber, M.D. Jefferson Medical College, 1865; for many years a practitioner of Brooklyn; assistant surgeon of U. S. Volunteers during the Civil War; died at his home in Brooklyn, October 16, aged 76.

Charles E. Goldsborough (license, Adams County, Pennsylvania, 1881); surgeon of U. S. volunteers throughout the Civil War; a practitioner since 1856; one of those who crossed the continent to California in 1849; died at his home in Hunterstown, October 20, from acute gastritis, aged 78.

William A. Jones, M.D. Hahnemann Medical College, Chicago, 1883; a member of the State Medical Society of Wisconsin; for four years postmaster of Oconomowoc; died in St. Mary's Hospital, Milwaukee, October 31, from cerebral hemorrhage, a week after an operation for appendicitis, aged 56.

Edmund T. Allen, M.D. Cleveland University of Medicine and Surgery, 1881; Hahnemann Medical College, Philadelphia, 1886; a Fellow of the American Medical Association; once secretary of the Nebraska State Board of Health; died suddenly at his home in Chicago, August 17, aged 57.

William Anderson Mitchell, M.D. Yale University, New Haven, Conn., 1865; a veteran of the Civil War; since 1873 an officer of the Safe Deposit Company of New York, and at the time of his death its second vice-president; died at his home in Brooklyn, September 26, aged 71.

Frederick Eugene Wadhams, M.D. Rush Medical College, 1878; a member of the Illinois State Medical Society, and for 56 years a resident of Chicago; for several years local surgeon for the Chicago and Northwestern Railroad; died at his home in Chicago, November 1, aged 60.

William Allen Tremaine, M.D. Harvard Medical School, 1883; a member of the Maine Medical Association; of Rockport, Me., for twenty years a practitioner of Providence, R. I.; died at the Evans Memorial Hospital, Camden, Me., recently, from carcinoma of the throat, aged 60.

Oliver G. Comstock, M.D. Toledo (Ohio) Medical College, 1884; a member of the Ohio State Medical Association; formerly city physician and a member of the board of education of Toledo; died at his home in that city. October 28, from heart disease, aged 58.

William John McKay, M.D. Manitoba Medical College, Winnipeg, 1899; medical health officer of Saskatoon, Sask., who was doing postgraduate work in sanitation in London; died in University College hospital, London, August 6, from pleurisy, aged 39.

Forrest Glenmore Crowley, M.D. Yale University, New Haven, Conn., 1912; house surgeon at St. Raphael's Hospital, New Haven; died in that institution, October 8, from disease of the intestine, for which operation was performed without avail, aged 33.

Edward H. Bartlett (license, Maryland); a surgeon in the confederate service during the Civil War; once postmaster of Oakland; superintendent of schools and clerk of the school board of Garrett County; died at his home in Oakland, October 2, aged 83.

Morris Ramsey Bowie, M.D. University of Maryland, Baltimore, 1908; a Fellow of the American Medical Association and a prominent practitioner of Gunnison County, Colorado; of Somerset, Colo.; died in Los Angeles, October 21, aged 27.

Timothy Miles Leatherwood, M.D. University of Alabama, Mobile, 1891; of Tuscaloosa; a member of the Medical Association of the State of Alabama; died in Asheville, N. C., October 25, from tuberculosis, aged 50.

Edward Camplin Hill, M.D. Washington University, St. Louis, 1863; for many years a practitioner of Buchanan County, Missouri; died from heart disease in the county court room in St. Joseph, October 20, aged 76.

John W. Hudson, M.D. Memphis Hospital Medical College, 1886; University of Louisville (Ky.), 1889; for several years postmaster of Milano, Tex.; died at his home in that city, October 19, from typhoid fever, aged 68.

Oscar Eugene Harris, M.D. Medical College of Ohio, Cincinnati, 1890; of Wynne Ark., and president of the Cross County Bank; died in the Baptist Memorial Hospital, Memphis., Tenn., August 20, aged 53.

John F. Lohrs, M.D. Keokuk (Ia.) Medical College, 1896; died at his home in Highland, Wis., July 26, from the effects of a gunshot wound of the chest, self-inflicted, it is believed, with suicidal intent, aged 39.

Chester Belding Jennings, M.D. Hahnemann Medical College. Philadelphia, 1881; a member of the school board of Reading, Pa., for fifteen years; died at his home in that city October 10, from diabetes, aged 57.

John W. P. Harrod (license, Arkansas, 1905); of Olmstead, was shot and killed by the husband of a patient near Olmstead. October 10, aged 33.

Grover Cleveland Edwards, M.D. Atlanta (Ga.) School of Medicine, 1913; of St. Petersburg, Fla.; house physician at the Wesley Memorial Hospital, Atlanta; died in that institution, August 5, aged 27.

Newton S. Matthews, M.D. Medical College of Ohio, Cincinnati, 1880; a member of the Kentucky State Medical Association; died at his home in Williamstown, Ky., October 28, from heart disease, aged 62.

W. H. H. Crow (license, Missouri, 1883); a practitioner of Monroe County, Missouri, for 65 years; died at the home of his daughter in Kirksville, Mo., September 20, from cerebral hemorrhage, aged 89.

James F. Mock (license, Indiana, 1897); for thirty years a practitioner of Marion; once a representative from Madison County in the state legislature; died at his home in Marion, October 5, aged 76.

Edward Enos Hopkins, M.D. University of Buffalo, N. Y. 1906; a practitioner of Rochester until compelled to retire on account of ill health; died at his home in Honeoye Falls, October 24, aged 31.

H. K. Legge (license, Arkansas, 1903); a practitioner for more than forty years and a Confederate veteran; died at his home in Garfield, Ark., September 21, from senile debility, aged 83.

Alba G. Blanchard, M.D. Eclectic Medical Institute, Cincinnati, 1882; a member of the Illinois State Medical Society; died at his home in Creston, October 28, from diabetes, aged 65.

Elmer E. Lamb, M.D. Eclectic Medical University, Kansas City, Mo., 1911; professor of orthopedic surgery in his alma mater; died at his home in Kansas City, October 8, aged 48.

John A. Fritz, M.D. California Eclectic Medical College, Los Angeles, 1895; of San Francisco; died in the municipal tuberculosis hospital, September 26, from tuberculosis, aged 53.

Armatus S. Holland, M.D. Chicago Homeopathic Medical College, 1896; for many years a practitioner of Chicago; died at his home November 2, from cerebral hemorrhage, aged 71.

Lawrence David Hyde, M.D., Cooper Medical College, San Francisco, 1906; of Visalia, Cal.; died in the German Hospital, San Francisco, September 24, from tuberculosis, aged 31.

William Herbert Lynn, M.D. Rush Medical College, 1877; of Hastings, Neb., and at one time coroner of Adams County; died in Ingleside Hospital, October 18, from pneumonia.

John Franklin Ford, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1883; died at his home in Waggoner, Ill., August 30, from carcinoma of the pancreas, aged 61.

Leo Henry Hartzell, M.D. Jefferson Medical College, 1913; died in the Philadelphia Municipal Hospital, in which he was an intern, from scarlet fever, October 12, aged 22.

George M. Howe (license, Kansas, 1909); of Wichita, Kan., and later of Kansas City, Mo.; died in Oklahoma City, Okla., September 26, from heart disease, aged 42.

George L. Lee, M.D. College of Physicians and Surgeons, Baltimore, 1882; died at his home in Center Hall, Pa., August 7, from carcinoma of the liver, aged 60.

James Polk Fox, M.D. Chicago Medical College, 1875; for eight years United States pension examiner; died at his home in Gaylord, Mich., October 9, aged 65.

Louise Anna Kortbein, M.D. Cincinnati College of Medicine and Surgery, 1886; died at her home in Cincinnati, October 4, from cerebral hemorrhage, aged 62.

James N. Mitchell, M.D. Vanderbilt University, Nashville, Tenn., 1881; was found dead from heart disease, on his farm near Plumerville, Ark., October 3.

Harry William Hyatt, M.D. New York University, New York City, 1898; of New York City; died in St. Luke's Hospital, October 23, aged 39.

Gotthard Hirsemann, M.D. Long Island College Hospital, Brooklyn, N. Y., 1888; died at his home in Highland Mills, N. Y., October 6, aged 3.

William E. Hathawa M.D. Pulte Medical College, Cincinnati, Ohio, 1889; died a his home in Cincinnati, October 8, from nephritis, aged 68.

William P. Manaton, M.D. New York Homeopathic Medical College, New York City, 188 ; died at his home in Greenport, N. Y., August 6, aged 48.

Fred Benniman Gale, M.D. U iversity of Vermont, Burlington, 1880; died at his home in lainfield, September 21, from heart disease, aged 60.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

BAUGHN'S PELLAGRA REMEDY

A Worthless Nostrum Sold Under Fraudulent Claims

"Pellagra Cured!" This, in letters an inch high, is the title of a gaudy-covered booklet sent out by "Dr. G. P. Baughn—American Compounding Co., Jasper, Alabama." The "cure" in this instance is "Baughn's Pellagra Remedy." The greater part of the booklet is devoted to testimonials. The balance of it is written in the most approved "scare" style and is to the tenor that 20,000 people are suffering from pellagra and that the only hope for the victims of the "grim specter, stalking unseen up and down the land, touching with the icy hand of death the young child *playing in the sun*, the devoted mother *crooning o'er her babe*, the father *toiling in the field*"—is "Baughn's Pellagra Remedy"!

This book is apparently intended to convince the public that every vague ache and pain is a symptom of pellagra. "How," asks Baughn, "may you recognize this monster before his grasp on your body makes all your struggles futile?" The answer is forthcoming:

> "Have you a feeling of nervous exhaustion and lassitude?
> "Have you unusual bowel disturbance and diarrhoea?
> "Have you pains and aches for which there seem no cause?
> "Have you headaches and vertigo difficult to explain?"

If you have any of these, the inference is that the "grim specter," pellagra, has you in its grasp! Horror is piled on horror in the most approved "patent medicine" style, reaching as a grand climax a description of "the last stages" and closing with the peroration:

> "*And the last stage, till now*—the MAD HOUSE and DEATH."

Of course the escape from this catastrophe is Baughn's nostrum.

> "Like a guardian spirit my remedy stands between you and this hitherto unconquered disease—thrusting off its hideous grasp, healing your body and filling you again with the JOY of living. Even the most stubborn cases yield readily to this miraculous cure. I've cured to stay cured those whom regular physicians had given up to die."

Like every quack—if we are to believe their statements—Baughn "searched and searched" until he "had found in nature's laboratory the balm that heals"! And now: "I offer the cure to the world"—price $10.

"Dr." Baughn, by inference, claims to be a physician. "My knowledge of medicine," says he, "enables me to diagnose those conditions [of pellagra] accurately." As is often the case, the banks are used as an asset to quackery. In the Baughn booklet the Central Bank and Trust Company of Jasper testifies: "We are acquainted with Mr. G. P. Baughn of the American Compound Company and know him to be thoroughly reliable." It says further, "We do not hesitate to say that he, as well as all other members of said company, will carry out any contract they make." The Central Bank and Trust Company ought to know, as its president, H. W. Cranford, is apparently a co-partner in Baughn's quackery, his name being given as vice-president of the American Compounding Company. The bank's vice-president, W. C. Clark, is president of the American Compounding Company—truly a beautiful combination!

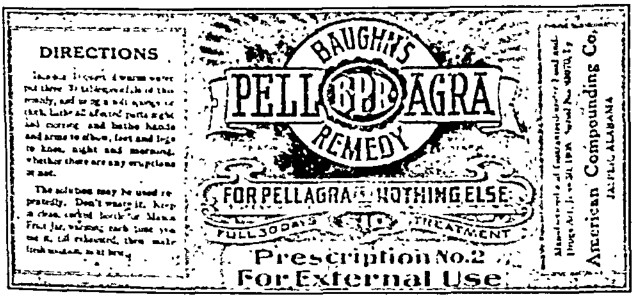
Letters sent out as late as July, 1913, give the following as officers and directors of the American Compounding Company:

W. C. Clark, president and director.
H. W. Cranford, vice-president and director.
J. H. Bankhead, Jr., secretary, treasurer and director.
A. F. Fite, director.
G. P. Baughn, director.

The later stationery has, in addition to these names, that of Dr. A. L. Hendon, "Medical Director." According to our records, A. L. Hendon is not a graduate of any medical college, but seems to be licensed to practice medicine in Alabama. Needless to say he is not a Fellow of the American Medical Association or a member of his local society. So far as G. P. Baughn is concerned, in spite of the fact that he terms himself "doctor," claims to be able to diagnose diseases and to have studied medicine, our records—and they are exceedingly complete—fail to show that any man of this name was ever graduated by a medical college or licensed to practice medicine. Certain it is that G. P. Baughn holds no license to practice medicine in the state of Alabama.

A ten-dollar "treatment" of Baughn's Pellagra Remedy was sent to the American Medical Association by the State Health Officer of Alabama, Dr. W. H. Sanders, who asked that the stuff might be analyzed and the public given the information. Dr. Sanders reported that the sale of the "cure" in pellagra-ridden districts was hindering the efforts of the medical profession in its campaign of sanitary enlightenment, looking to the prevention of pellagra. As in all such cases, the exploitation of worthless "cures" causes the general public to take the attitude that it is unnecessary to change one's method of living or subject one's self to minor inconveniences to prevent a disease that can be "positively cured" by Dr. Quack's Specific.

The nostrum sent in by Dr. Sanders was in powder form and in two bottles. One bottle was labeled "Prescription No. 1, For Internal Use"; the other "Prescription No. 2, For External Use." "Prescription No. 1" consisted of black powder in capsules; "Prescription No. 2" was a coarse, mustard-colored powder, loose in the bottle. The stuff was analyzed in the Association's laboratory and the black powder in the capsules was found to have—in addition to small particles of straw and "dirt"—essentially the following composition:


DIRECTIONS

BAUGHN'S PELLAGRA REMEDY

BPR

FOR PELLAGRA & NOTHING ELSE

FULL 30 DAYS TREATMENT

Prescription No. 2
For External Use

American Compounding Co.,
JASPER, ALABAMA

Fig. 1.—Photographic reproduction of label on one of the bottles of Baughn's "cure" for pellagra.

Quinin Sulphate	2 per cent.
Charcoal	13 per cent.
Impure Iron Sulphate	85 per cent.

"Prescription No. 2" also contained particles of "dirt" and straw and was found to consist, approximately, of:

Common Salt	25 per cent.
Monsel's Salt (Basic Iron Sulphate)	75 per cent.

The chemist's report in further detail follows:

CHEMIST'S REPORT

The specimens of Baughn's Pellagra Remedy, submitted to the Association's laboratory for examination, were contained in two separate bottles. One bottle contained a number of capsules and was labeled: "For Pellagra and Nothing Else—Full 30 days' treatment—$10.00—Prescription No. 1, For Internal Use, Manufactured and Guaranteed Under Food and Drugs Act, June 30, 1906. Serial No. 48970, by American Compounding Co., Jasper Alabama," and contained capsules. The other bottle contained a yellow powder and was labeled as above, except for the modification "Prescription No. 2, For External Use."

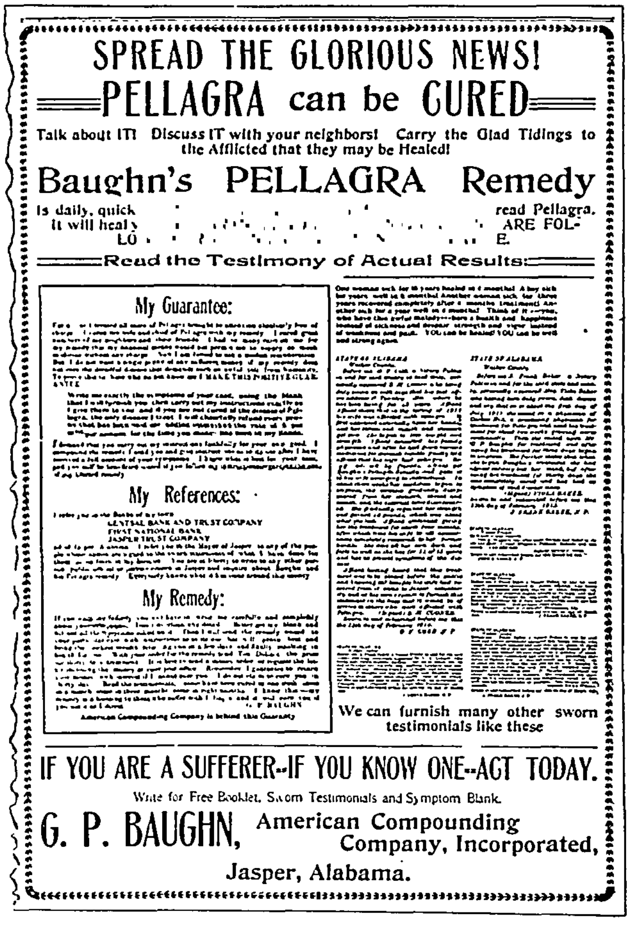
The capsules of "Prescription No. 1" contained a black and very poorly mixed powder along with particles of straw and "dirt." The average weight of the contents was 0.50 gram (about 7½ grains) to each capsule. As nearly a uniform sample as possible was analyzed with the following results:

Qualitatively the presence of charcoal, iron, [traces of aluminum and magnesium] quinin and sulphate was demonstrated. The iron was present in both ferric and ferrous forms. The following quantitative composition was found:

Carbon	12.5 per cent.
Iron (Fe)	25.9 per cent.
Sulphate (SO_4)	43.5 per cent.
Quinin	1.7 per cent.
Water (Loss at 120 C.)	3.3 per cent.
Alumina (Al_2O_3)	0.1 per cent.
Undetermined	13.0 per cent.

From the examination it is concluded that Baughn's Pellagra Remedy, "Prescription No. 1" consists essentially of charcoal 13 per cent., quinin sulphate 2 per cent. and impure iron sulphate, chiefly basic ferric sulphate, 85 per cent. Accordingly each capsule contains quinin sulphate 1/6 gr., charcoal 1 gr and impure, iron sulphate (basic) 6½ grs.

Examination of the "Prescription No. 2, For External Use," showed the yellow powder not to be readily soluble in water but readily soluble in acidulated water. The powder was not uniform in composition and from it crystals and even lumps (later proved to be sodium chlorid) could readily be separated mechanically as well as particles of straw and "dirt." Qualitative examination indicated the presence of iron, both in the ferrous and ferric condition, sodium, sulphate, chlorid and a small amount of a substance volatile in steam which was not identified. Quantitative determinations made on a representative sample gave:


SPREAD THE GLORIOUS NEWS!

PELLAGRA can be CURED

Talk about IT! Discuss IT with your neighbors! Carry the Glad Tidings to the Afflicted that they may be Healed!

Baughn's PELLAGRA Remedy

Is daily, quick [illegible] read Pellagra.
It will heal [illegible] ARE FOL-
LO[illegible]E.

Read the Testimony of Actual Results:

My Guarantee:

My References:

My Remedy:

We can furnish many other sworn testimonials like these

IF YOU ARE A SUFFERER--IF YOU KNOW ONE--ACT TODAY.

Write for Free Booklet, Sworn Testimonials and Symptom Blank.

G. P. BAUGHN, American Compounding Company, Incorporated,
Jasper, Alabama.

Fig. 2.—Quackery is profitable! Full-page newspaper advertisement of Baughn's pellagra "cure." The original was 14 inches by 20 inches in size.

Iron (Fe)	21.5 per cent.
Sulphate (SO_4)	41.4 per cent.
Sodium Chlorid (NaCl) (calculated from chlorid determination)	26.6 per cent.
Undetermined	10.5 per cent.

From the physical properties of the powder and from the analytical data obtained it is concluded that Baughn's Pellagra Remedy, "Prescription No. 2, For External Use," consists approximately of sodium chlorid (common salt), one part, and basic iron sulphate three parts.

The label on Baughn's Pellagra Remedy, "Prescription No. 2," directs that three tablespoonfuls be shaken with one quart of warm water and the solution so obtained be used. To determine the composition of the solution so obtained, three tablespoonfuls (about 55 gm.) were well shaken with one quart of warm water and this allowed to stand for three days. Examination of the supernatant solution showed each 100 c.c. to contain approximately, 1.4 gm. of sodium chlorid and 2.7 gm. of basic ferric sulphate (Monsel's salt). This is equivalent to about 7 grains of common salt and about 14 grains of Monsel's salt to each fluidounce.

And this is the marvelous "cure" for which Baughn claims to have "searched and searched" and finally "found in nature's laboratory!" This is the stuff that, according to Baughn, is "the balm that heals—the antidote for the poison that weakens and deadens body and intellect alike." This, a mixture of charcoal, common salt, iron sulphate and a dash of quinin—not to mention the straw and "dirt"—is what Baughn is selling at $10 a "treatment" to the unfortunate sufferers from pellagra.

There are many disreputable ways of making money, but we know of none so mean, so heartless, so devoid of common decency as that employed by the nostrum fakers. It is they who feed, carrion-like, on the fears of suffering humanity. To those stricken with a well-nigh incurable disease, they hold out the hope of a "sure cure" in the form of worse than worthless nostrums. To this class belong Baughn and his co-partners in fraud. Baughn's remedy is utterly impotent to cure pellagra. In hampering the efforts of sanitary officers to stamp out the conditions that favor the spread of pellagra, Baughn is guilty of a social and economic crime; in frightening those who have not the disease into the belief that they are suffering from it, Baughn but follows the villainous tactics of the "patent medicine" fakers; in selling as a "cure" his worthless stuff to those who have the disease, he perpetrates a heartless fraud.

WATERBURY'S COMPOUND ONCE MORE

Most of our readers will remember what The Journal has published about a product that used to be sold as "Waterbury's Metabolized Cod-Liver Oil Compound." Briefly, it was shown by a report of the Council on Pharmacy and Chemistry and a contribution from the Association's laboratory, that this "Cod-Liver Oil Compound" contained practically no cod-liver oil! Later the federal government declared the stuff misbranded.

The product is now sold under the name "Waterbury's Compound." It was recently stated in this department that "Waterbury's Compound" was one of the proprietary preparations advertised both in "display" form and also in the form of an "original article," in the *Army and Navy Medical Record* —a fraudulent publication that offered its editorial pages for sale. Physicians are now receiving from the Waterbury Chemical Company, a reprint of what purports to be an editorial from the *Army and Navy Medical Record* entitled, "One of America's Most Valuable Preparations." The preparation, of course, is "Waterbury's Compound." The company in sending out this reprint also reproduces on the reverse side the title-heading of the *Army and Navy Medical Record.* All of which goes to show that some concerns not only do not mind being found in bad company, but seem proud of it. By the way, we wonder whether those physicians who are still prescribing this nostrum think they are prescribing a preparation containing cod-liver oil!

Tentative Conclusions Concerning Pellagra.—After two years of research the Thompson-McFadden pellagra commission in South Carolina, sums up its findings as follows: "1. The supposition that ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study. 2. Pellagra is, in all probability, a specific infectious disease communicable by means at present unknown. 3. We have discovered no evidence incriminating Buffalo gnats in the causation of pellagra. If it is distributed by a blood-sucking insect, the stable-fly would appear to be the most probable carrier. 4. We are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease. 5. No specific cause of pellagra has been recognized."

Correspondence

The Central Health Institute

To the Editor:—It has been brought to my attention that in a recent number of The Journal I was mentioned as one of the incorporators of the "Central Health Institute," an institution which has carried on considerable advertising. The fact as stated is correct, but the inference easily deduced is entirely wrong, for I withdrew from the corporation within one month after it was incorporated. The "Central Health Institute" was incorporated with the intention of establishing an ethical institute of physiologic therapeutics and later a sanatorium. This institute then was located in the Methodist Book Concern Building, which does not rent to advertising concerns. Dr. Livingston, who had just graduated from the medical college, was introduced to me by the president of the college, and it was on his recommendation that I entered into the work. It took less than a month to demonstrate that Dr. Livingston's ideas and mine were entirely different, so both Dr. Lambert and I withdrew from the institution and Dr. Livingston and the "Central Health Institute" moved to a different location, while I retained the offices in the Methodist Book Concern Building. I attach a copy of documentary proof of my statements. In justice to Dr. Lambert and myself I ask you to publish this letter in The Journal, from which the misunderstanding started and to remove our names from all copies of the pamphlet [reprint] sent out in the future.

Edith B. Lowry, M.D., St. Charles, Ill.

[Comment.—We are pleased to publish this letter in justice to Dr. Lowry. The Dr. Livingston referred to, Margaret M. Livingston, was graduated in 1909 by Bennett Medical College, Chicago, whose president at that time, as now, was Dr. John Dill Robertson.—Ed.]

No Optical Goods Concession at the Panama-Pacific International Exposition

To the Editor:—In The Journal for Oct. 11, 1913, p. 1382, there is an editorial headed "Spectacles and the Panama Exposition," in which you comment rather bitterly on the proposed sale of an optical goods concession at the Panama-Pacific International Exposition. You base your comments on the assumption that any concession for the sale of optical goods must necessarily be on the same plane as one for the sale of peanuts. This assumption is utterly unfounded. It is, moreover, an injustice aggravated by the fact that the exposition directorate took special care to guard against the very dangers which you assume must necessarily arise.

It may not be known to you that the laws governing the practice of optometry in California are exceptionally rigid. No man in California is allowed to sell spectacles or eyeglasses unless he is duly qualified and certified. A spectacle-selling concession in the exposition grounds would be, and must be, conducted on precisely the same professional plane as it would be if on Market Street, San Francisco, or State Street, Chicago. In fact it would, if anything, be on a higher plane, for in addition to the statutory protection of the state of California the exposition directorate had surrounded this particular concession with several other safeguards. These were so rigid that one prominent member of the American Optical Association complained that no optometrist could possibly make any money under such restrictions. He endeavored to have the regulations modified in order that he, himself, might become a bidder for the concession, but was refused. Please consider this in answer to the accusation that the exposition regarded only the commercial side of the matter.

The citizens of California intend to build and to conduct an exposition utterly free from any taint of graft, favoritism, extortion or uncleanliness. The safety, comfort and fair treatment of visitors stand first in all plans. This is to be the greatest exposition in history and one of which California and the nation must be proud. We take this responsibility very seriously and if you knew how hard we are trying to reach high ideals in plan and execution you would, I am sure, give us congratulations and support. But all this is beside the mark, for the optical goods concession has been withdrawn from sale and no spectacles or eye-glasses will be sold at the exposition. So the matter is pleasantly settled. But I cannot refrain from giving you the facts as they were, because your accusation of selfishness and greed *hurts*.

George Hougbberry, San Francisco,
Director, Division of Exploitation.

[Comment.—We are delighted to publish the preceding and congratulate the officials of the Panama-Pacific International Exposition on their action in this matter.—Ed.]

Should Friends of Patients be Admitted to the Operating-Room?

To the Editor:—A rather sad but unique accident occurred in my service at Harper Hospital, Detroit, October 30, which answers this question most convincingly in the negative. A friend of a patient insisted on being admitted to the operating-room. He was told that the privilege was not allowed by the rules of the hospital, but could not understand why it should be denied him. He maintained that as long as his own daughter was the nurse in charge of the case, and that the patient to be operated on was a dear friend, he surely would be able to withstand the strain of the operation without any evil effect, and after some discussion he was finally admitted. During the course of the operation this friend of the patient fainted and fell, striking his head on the mosaic floor. He bled from the nose and ears, and roentgenoscopy revealed a T fracture of the base of the skull. His condition is still critical.

Another even more disastrous accident occurred at the Kalamazoo Hospital not very long ago. In this case the patient's relative felt a feeling of faintness coming over him, and in order to rid himself of the disagreeable sensations walked over to an open window for more fresh air. He sat on the window-sill and while sitting there fainted away completely. He fell out of the window and in falling sustained a fracture of a cervical vertebra which proved fatal.

I cite these two cases just to show what evil results may follow the unnecessary practice of admitting friends of patients to the operating-room.

Angus McLean, M.D., Detroit.

Method of Sterilizing Rubber Gloves

To the Editor:—For three years I have been using the method of glove sterilization criticized by Dr. McDonald (The Journal, Nov. 8, 1913, p. 1735). Undoubtedly gloves covered with "blood, pus, serum or soap" would be impervious to the action of cyanid or alcohol; but in soap and hot water we have a very active agent for the removal of these "organic substances" from the smooth surface of the rubber glove, and most certainly the gloves are to be washed and rinsed, as stated in my article. Alcohol is conceded by most, if not all, authorities to be a most effective germicidal agent. Many of our most famous surgeons use no other method of hand sterilization than scrubbing with soap and water followed by alcohol.

The gloves made clean by soap and water and sterilized by alcohol are protected from subsequent infection by the talc-cyanid powder. It was not my intention to recommend these gloves for all purposes, but for obstetric work; and surely, when infection is known to exist prior to the use of the gloves they would be boiled subsequently before being treated with the cyanid solution. Theoretically they may not be sterile, but practically they surely seem to be. Theoretically gloves must be boiled for thirty minutes under a pressure of 15 pounds to be sterile, but practically how many men do boil their gloves under pressure, and for thirty minutes? My method is not ideal, but it is much more safe than the ungloved hand hurriedly washed, dipped into compound solution of cresol and used, which is by no means a rare occurrence among general practitioners in obstetric work.

Ray Ernest Smith, M.D., Rutland, Vt.

The Unscientific Prescribing of Complex Pharmacopeial Mixtures

To the Editor:—Dr. Osborne's criticism and condemnation of certain pharmacopeial mixtures (The Journal, Oct. 4, 1913, p. 1289) will undoubtedly be appreciated by the thoughtful and careful physician. If it is unscientific to prescribe ready-made patented or proprietary remedies when their exact composition is unknown to us, why is it not equally unscientific to use complex official preparations, some of the ingredients of which we generally do not remember? The fact that we usually know the therapeutic use of the preparation as a whole and its dose is not enough to justify our prescribing it. Every dose of medicine which the doctor gives his patient to swallow should have all its ingredients carefully considered and passed on by the prescriber. This can hardly be done with complex ready-made preparations, as the doctor seldom remembers their exact composition.

Just the other day, while in a drug-store in my neighborhood, I saw a prescription from a regular physician in good standing calling for paregoric, brown mixture, glycerin and water. The druggist told me that he called up the doctor on the telephone and informed him that brown mixture (mistura glycyrrhizæ composita) contains paregoric (camphorated tincture of opium) as one of its ingredients, and that glycerin enters into the composition of paregoric. The doctor thanked him and authorized him to leave out the paregoric and glycerin and dispense only the brown mixture and water.

Such errors we make daily just because it is impossible for the average practitioner to remember the composition of these mixtures.

Dr. Osborne's criticism well deserves the closest attention of every doctor. L. Buckle, Ph.G., M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPEN-AIR TREATMENT AND THE FLUELESS HEATER

To the Editor:—I may be, as you state in your reply to my note on "The Open-Air Treatment" and "The Flueless Gas-Heater" editorials (The Journal, Nov. 1, 1913, p. 1649), "evidently unfamiliar with the literature" when I say that the experiments are too few to permit "definite conclusions to be safely drawn on a subject which concerns the health of millions of people"; but I am not the only occupant of that conspicuous position.

When you wrote in the editorial on "The Open-Air Treatment" (The Journal, Oct. 11, 1913, p. 1378) the words "is wholly in accord with recent experimentation," you evidently were unfamiliar with the literature on the subject. Permit me to add to the list of authorities you so kindly furnished that of Yandell Henderson (*Tr. Fifteenth Internat. Cong. Hygiene and Demography*, vii, 622). And now that your attention has been directed to Henderson, it will be in order for you to dispose of him, or rewrite the phrase "wholly in accord" to correspond to the facts; for "wholly" means "entirely," and Henderson produces facts that are not "wholly in accord."

That I had good grounds for the statement that the experiments are altogether too few to permit definite conclusions to be drawn on a subject which concerns the health of millions of people, and that the subject of ventilation is still open, and that more facts should be observed and presented for consideration before we can draw definite conclusions, allow me to quote from Henderson: "We have really" he writes, "at the present time no adequate scientific explanation for the health-stimulating properties of fresh air and the health-destroying influence of bad ventilation." He summarizes the literature of the subject, including the heat-block conclusion, and asks, "Is this explanation satisfactory?" and adds, "I must confess for me it is not. From the standpoint of hygiene, it is practically proved. From the standpoint of physiology, however, the proof offered by Hill and Flügge merely opens up a new question." In conclusion he says, "The subject needs investigating along new lines rather than a rehearsal of old data." Thus, according to Henderson the conclusions of Flügge furnish no adequate scientific explanation, and I had good grounds for the statement that the subject of ventilation is still open and that more facts should be observed and presented before we can draw definite conclusions.

This is also in accord with Winslow (N. A. S. Report, 1911, p. 784) when he states that "extended studies of actual conditions in relation to their effect on physical and mental efficiency can alone furnish a sound basis for such standards as we should like to possess."

The conclusions based on the experiments of Hill and Flügge have furnished a good working hypothesis and have been of value in satisfying the hygienists, but it is very probable that in a few years it will resemble one column, and not a complete edifice, or else perhaps a bird's nest from which the birds have flown.

John B. Todd, M.D., Syracuse, N. Y.

Answer.—In reply we may say:

1. At the time the editorial in question was written the *Transactions of the Fifteenth International Congress on Hygiene and Demography* had not been published. There was therefore a reason for being "unfamiliar" with the article in question.

2. Professor Henderson's interesting paper to which our correspondent refers does not contain new experimental data, but is simply a discussion of the physiologic side of ventilation.

3. We would especially call our correspondent's attention to the fact that the article he quotes does not advocate the view that the effects of bad ventilation are due to chemical impurities in the air or to lack of oxygen. On the contrary, starting with the thesis, which "is wholly in accord with recent experimentation," that high temperature, moisture content and air-stagnation are the factors whose influence in ventilation have thus far been demonstrated, Henderson discusses the precise nature of the physiologic reactions to these conditions on the part of the organism. Briefly, his conclusion is that instead of skin conditions being responsible for all the results of bad ventilation, oxygen secretion on the part of the lungs must be taken into consideration. This is somewhat different from Hill's explanation of the physiologic response to conditions of good and bad ventilation, but it in no way touches either the point raised in our editorial of October 11 or our answer to our correspondent November 1. Henderson evidently considers that the effect of cold on the skin "is to stimulate the pulmonary epithelium to secretory activity." He continues: "Taking all of these facts into account, it is logical to conclude that the lungs are normally the seat of a more or less active process of oxygen secretion, and that the effects of warm, moist air on the skin are to inhibit this process in the lungs." Note that "cold" and "warm, moist air" are the factors mentioned.

4. Even if we were to assume that we know all about the factors concerned in ventilation—an assumption by no means justified—we should still have the problem of the way in which these factors act on the human body. This is the real theme of Henderson's article; it is quite true, as he states, that "the proof offered by Hill and Flügge merely opens up a new problem." In scientific investigation a problem "solved" always reveals others in need of solution. The point we attempted to emphasize in our editorial was that there is no evidence that the effect of bad ventilation is due to chemical impurities, but that the observed effects can be largely if not wholly explained by high temperature, high humidity and air-stagnation and that the action of these factors on the human organism may in turn be accounted for on rational physiologic grounds. Our correspondent seems to have misunderstood completely the tenor both of the criticized editorial and of Henderson's article. We recommend a careful rereading of both.

LITERATURE ON PSYCHOLOGY AND PSYCHOTHERAPY

To the Editor:—Please refer me to recent works on philosophic and scientific explorations, investigations and speculations of the occult sciences, the subconscious mind, psychotherapy, dreams, etc.

E. F. Wiederanders, M.D., Estancia, N. Mex.

Answer.—Following are some useful works in this broad field:

Tuckey: Psychotherapeutics, G. P. Putnam's Sons, 29 West Twenty-Third Street, New York. $3.
Forel: Hypnotism, or Suggestion and Psychotherapy, translated by H. W. Armit, Rebmar Company, 1123 Broadway, New York.
Sidis: Psychology of Suggestion, a Research into the Subconscious Nature of Man and Society, D. Appleton & Co., 436 Fifth Avenue New York.
Schofield: Force and Mind, or the Mental Factor in Medicine, Blakiston's, $2.
Schofield: The Unconscious Mind, Funk and Wagnalls, $2.
Schofield: Unconscious Therapeutics, Blakiston's, $1.50.
Monro: Handbook of Suggestive Therapeutics, Applied Hypnotism and Psychic Science, Mosby Medical Book Company, 2313 Washington Avenue, St. Louis, $3.
Alexander, H. B.: Subconscious in the Light: Dream Imagery and Imaginative Expression (in *Proc. Am. Soc. for Psychical Research*, iii, part 2), American Society for Psychical Research, $1.00.
Mental Healing. Queries and Minor Notes, The Journal, July 29, 1911, p. 408.
Freud, Sigmund: Dreams, New York, Macmillan, $4.
Jastrow, Joseph: The Subconscious Mind, Boston, Houghton, Mifflin & Co.
Dejerine, J., and Gauckler, E.: Psychoneuroses and Their Treatment by Psychotherapy, translated by S. E. Jelliffe, Philadelphia, Lippincott, 1913, $4.
B. C. A.: My Life as a Dissociated Personality, Boston, R. G. Badger, $1.
Munsterberg, H.; Ribot, T.; Jastrow, J.; Janet, P.; Hart, B., and Prince, M.: Subconscious Phenomena, Boston, R. G. Badger, $1.20.
Prince, Morton: Psychotherapeutics, Boston, R. G. Badger, $1.50.
Miller, H. Crichton: Hypnotism and Disease, Boston, R. G. Badger, $1.50.

REGULIN

To the Editor:—Will you kindly let me know what Regulin is? Enclosed is literature telling what it is, but there is so much left unsaid that I will be grateful for more information.

F. M. R., Monticello, Iowa.

Answer.—Regulin is agar-agar (N. N. R., 1913, p. 20) to which some cascara preparation has been added. The product at one time was described in the Appendix to New and Nonofficial Remedies as follows:

> A mixture of agar-agar in a dry form with extract of cascara sagrada representing 15 per cent. of an aqueous fluidextract of cascara sagrada.

RIMINI-BURNAM TEST FOR FORMALDEHYD IN URINE

To the Editor:—Please describe the Rimini-Burnam test for formaldehyd in the urine. J. W. Shuman, M.D., Sioux City, Iowa.

Answer.—The test referred to is a modification of the Rimini test by Mr. H. A. B. Dunning, and is thus described by him in the *American Journal of Pharmacy*, October, 1913:

> About 2 c.c. of urine specimen, contained in a five-inch test tube, is warmed and two drops of 0.5 per cent. solution of phenylhydrazin hydrochlorid is added, followed by 2 drops of 0.5 per cent. solution of sodium nitroprussid, the mixture being made strongly alkaline with saturated solution of sodium hydroxid. In strengths of from 1:20,000 to 1:50,000 a deep-blue coloration results, changing in a few minutes to green, then yellow, or perhaps, red. In more dilute solutions the blue lasts momentarily only, and is quickly superseded by green. The blue may be made to last longer and become more distinct by adjustment of the quantities of sodium nitroprussid and phenylhydrazin hydrochlorid added, the weaker strengths requiring less nitroprussid and phenylhydrazin. In alkaline solutions phenylhydrazin gives a yellow color; therefore, if there is but a trace of formaldehyd, the depth of blue color is masked and converted into green by mixtures of colors blue and yellow.

The following method may be used to determine the quantity:

> To 5 c.c. of specimen contained in a 5-inch test-tube, add 0.1 c.c. of 15 per cent. solution of sodium hydroxid and mix well. Then add 0.1 c.c. phenylhydrazin, base, not hydrochlorid; finally add 0.7 gm. of stick sodium hydroxid and agitate for ten minutes. The strength is estimated colorimetrically by comparing with the standard solutions treated in same manner as specimen, and at the same time. It is important to remember that the several reagents must be added to specimen and standard solutions at the same time; that is, specimen and standard are treated simultaneously. Standard solutions of formaldehyd may be prepared by accurately diluting an assayed specimen to the strength of 1:50,000, 1:100,000, 1:200,000, etc.

PETROLEUM POISONING—CARBON MONOXID POISONING

To the Editor:—1. Please give symptoms and treatment of poisoning by inhaling the fumes of gasoline.

2. Give symptoms and treatment of carbon monoxid poisoning.

E. S. Caster, M.D., Solomons, Md.

Answer.—1. The general symptoms of petroleum (gasoline) poisoning consist in headache, dizziness, accelerated heart-action, labored respiration, collapse, stupor, unconsciousness and, more rarely, convulsions; sometimes there is a rise of temperature. Drowsiness is a prominent symptom. Unconsciousness has come on in from ten to fifteen minutes after the swallowing of less than half an ounce of benzin. In cases of collapse, warm baths with cold affusions are recommended; the usual respiratory and cardiac stimulants are also indicated.

2. A description of the symptoms and treatment of monoxid poisoning would occupy more space than can be given to it. We refer the reader to an article on illuminating-gas poisoning in the Handbook of Therapy; page 408. This article also appeared in The Journal, Feb. 6, 1909, p. 473.

Medical Economics

INCOME TAX APPLIED TO PHYSICIANS

The amount of discussion in the newspapers and elsewhere has made those interested familiar with the general provisions of the income tax. Its application to physicians, however, involves some difficult problems, the working out of which will have no small effect on the economic side of the practice of medicine. The general provisions of the law are well understood.

The first and most important question which will be raised by the application of this law to physicians is, What is a physician's income? In the case of physicians or surgeons employed on a salary by life-insurance companies, railways and other industrial organizations, the question is as easily determined as in that of any other class of salaried employees. The great bulk of physicians, however, have an income made up of fees received from patients for services rendered, the sums being large in number and relatively small in amount.

It has been customary for a physician to regard his gross receipts for the year as his income. The inaccuracy of such a supposition, and the injustice of taxing a physician on his gross receipts, is self-evident. Out of the entire amount of money received during the year, the physician or surgeon has to pay the expenses of his business. His gross receipts no more constitute his income than the gross receipts of a dry-goods store constitute the income of the proprietor. Out of his gross receipts a physician has to pay for his office, telephone, office girl, stenographer, instruments, books, professional journals, drugs, dressings, and all the material needed for his work, as well as for the maintenance of horses, carriages, automobiles or other means of conveyance. Clearly, a physician's income is the difference between his gross receipts and the cost of operating his business, or the amount that he has left for himself and his family after paying all his necessary professional expenses.

In the case of surgeons in large cities or specialists doing an exclusive office practice, it will be comparatively easy to separate the necessary business expenses from personal expenses. It will be necessary only to keep a separate account of all expenses connected with one's office, and to deduct this amount from the gross receipts. It is doubtful, however, whether even these elementary bookkeeping methods are being followed by the majority of physicians under such conditions. A careful inquiry would probably reveal the fact that many of our most successful specialists and surgeons would be unable to tell, offhand, how much it costs them to carry on the business side of their work during the year. Such a separation of business and personal expenses will become necessary under the law in order to determine the real income of such physicians.

The law provides for the deduction of "necessary expenses for carrying on any business." Obviously the difficulty will lie in determining what these necessary expenses are. When the case of the average general practitioner in the small city, town or country district is considered, however, the difficulties multiply. In many cases the only form of bookkeeping followed by physicians has been a personal running account with each patient or family. Services have been charged against the patient and payments have been credited. No attempt has been made to balance the books annually, to charge off bad accounts, to estimate the value of standing accounts, or to arrive at any definite figures as to the cost of doing business. Outside of the larger cities the majority of physicians have their offices in their homes. No attempt is made to separate office rent or office expenses from general living expenses. Heat, light, telephone and other necessities for professional work are also utilized for personal and family purposes. Drugs, dressings and other supplies are often purchased at the local drug-store, where a running account is carried, and where many articles for family use are purchased at the same time. Medical books are purchased and journals subscribed for, without any thought of the cost being a professional, and not a personal expense. Membership in medical societies is not recognized as anything but a personal relation, although in many cases it carries with it subscriptions to medical journals and is maintained for purely professional reasons. Horses, carriages or automobiles are used indiscriminately by the doctor for professional purposes and by himself or his family for social purposes and recreation. It is probably safe to say that the plan followed by the majority of physicians in the United States is to collect as large a percentage of their bills as possible, pay out of their available funds their professional and personal expenses and the expenses of their families without any effort at discrimination, and to regard any surplus which may remain as profit for investment or increased expenditures.

In the case of unmarried physicians whose gross receipts for the year amount to less than $3,000, or married physicians whose gross receipts are less than $4,000 there will, of course, be no difficulty. They will clearly come under the exemption clause. The limited number of physicians practicing surgery or any exclusive office specialty in large cities, who have systematized their work on a business basis, will also offer no difficulty. They can readily show the amount of their operating expenses and the balance remaining which will be subject to the income tax. The difficulty will arise in the case of the large number of physicians who have hitherto paid no attention to the details of expenses, and who will be incapable, without a marked change in their business methods, of separating their business and professional from their personal expenses. When this is attempted, some interesting questions will arise. For instance, should the entire cost of operating an automobile be regarded as a professional expense? It is probably true that the majority of physicians would not run an automobile were one not absolutely indispensable for present-day professional work. On the other hand, the machine is used, not only for work, but also for recreation by the physician and members of his family. How would it be possible to apportion the amount of time during the year spent in using an automobile for business and that spent in using it for pleasure?

In the same way difficulty will arise regarding office help and assistance. A physician having his office in his home has attendants who are partly professional and partly personal. A maid, for instance, who acts as attendant in the waiting-room during the doctor's office hours may be employed with domestic duties at other times. The telephone is certainly a professional necessity, and yet it is constantly used for personal and social purposes. The physician is different from any other professional man in that, in the majority of cases, his home is his place of business. The teacher has all of his equipment furnished him. The lawyer, even in small towns, hardly ever has his office in his house. The minister has little, if any, professional expenses. The business man has his place of business entirely separate, and the bookkeeping system which has been forced on him makes it easy for him to separate his business expenses from those of his home. But the physician has, for generations, carried on his work in his home. His professional and personal expenses have never before been separated.

In addition to determining what their incomes are, physicians will learn for the first time, owing to the necessity of more carefully kept accounts, what are the rewards of the practice of medicine. The ratio between expenses and profits in the practice of medicine will be learned. If it should be shown, for instance, that even in the case of a physician collecting a gross income of $10,000 a year, the net proceeds to the physician after all his expenses were paid was only $5,000, it would be evident that $5,000 and not $10,000 was his income and that in order to have $1 to spend he would have to earn $2. If it should appear that the physician collecting $4,000 a year in the small town had more money to show for his work at the end of the year than the physician in the large city collecting twice that amount, but paying out more than twice as much in expenses, then as a business proposition the advantages of country over city practice would be demonstrated. Many equally interesting and important deductions can be thought of.

The most important result of the application of this law to the medical profession, however, will be the necessity on the part of physicians of more accurate methods of bookkeeping, and more carefully kept accounts. It has often been observed that one of the most effective ways to make a man economical and thrifty is to require him to keep an accurate account of all the money which he pays out and the purposes for which it is paid. The majority of physicians to-day probably have no idea of the amount of their gross annual expenses, probably many do not even know their gross annual receipts. If compelled to keep an accurate record of all receipts and expenditures, and to draw up a balance sheet each year, the result would inevitably be greater economy in their business methods, more careful attention to business details, and, in the end, probably greater thrift and larger bank accounts. In the meantime, however, through the enforcement of the Underwood law, physicians may obtain some exceedingly interesting information regarding the economics of the medical profession, and their own financial standing.

MEDICAL INSURANCE IN GERMANY

An industrial insurance act, in the form of an amendment to the original act, but in reality practically a new law, will go into force in Germany on Jan. 1, 1914. While industrial insurance in Germany is of earlier origin than in England, apparently the government has not profited by the experience of Lloyd George in attempting to enforce the British insurance act, and has formulated the new German law without any reference to or consultation with the physicians who are to administer it. The new law leaves the classification of insurance the same as the old, namely, accidents, sickness, and invalid and old-age pensions, but adds a fourth classification in the form of provisions for widows and children of insured persons. The original act was designated as the Workmen's Insurance Act. This title is no longer applicable, as the new law greatly increases the beneficiaries, and takes in persons in the middle walks of life besides workmen. Under the old law the limit was $500 a year. All persons earning less than this amount were required to insure themselves under the provision of the act. The limit is now $600. Hereafter all workmen, domestic servants and all who contract to work for employers, whether occupied in shops or factories or their own homes, are compelled to take insurance under the law, even if their income exceeds $600, provided it does not exceed $1,250 per annum. In addition, all technical workers, schoolteachers, tutors, foremen, shop workers, and others whose income does not exceed $600 a year are required to insure themselves, while voluntary subscribers among independent workers and small landowners are permitted, in case their income does not exceed $750 a year. This extension brings under the provisions of the act not only the laboring classes, but also a very large proportion of the official and middle classes. It is estimated that the thirteen million persons insured under the old law will be increased to over twenty-two million, without including the voluntary beneficiaries.

So comprehensive is the new law that it is estimated that in some districts from 92 to 95 per cent. of the entire population will be insured. The effect of this on the private practice of medicine will, of course, be most marked. According to the *British Medical Journal,* the official bodies entrusted with the enforcement of the act in Germany correspond closely to the friendly societies and sick clubs in England. As these organizations are to be charged with the administration of the new law, the government has laid down conditions for their reorganization, and has provided that the members be divided into two groups, the city insurance societies and the rural insurance societies. In the first are included skilled workmen, tradesmen, officials coming under the operation of the law, and others. In the second class are included farm laborers, home workers and domestic servants. The small organizations under which the act has been administered heretofore will be replaced by a single organization, divided into two classes, as indicated above, with a total membership of between 400,000 and 500,000. This body will administer the insurance act for the twenty-two million of persons affected.

The same questions have evidently arisen in Germany as in England. The right of the insured to choose physicians has been one of the questions most heatedly discussed. Heretofore, the small local societies have had the right to adopt either one of two systems. Under one, any local physician was entitled to have his name enrolled as a physician on the society's books, and any member had the right to choose any physician so registered. Under the other system, the local society could appoint a certain number of physicians, and members were limited in their choice to those so chosen. German physicians have generally favored the free choice of physicians by patients, while the societies have favored the limited list. Under the new law both systems are retained; but it is probable that the new method of organization of the workingmen's societies will result in the establishment of controlling boards, composed of equal numbers of society members and physicians, in whom the right to appoint physicians will be lodged. The annual per capita fee of $1.20 per patient per year will probably not be increased.

The enactment of this new law in Germany and its application to a greatly increased and nearly doubled number of persons, and the enactment of the national insurance law in England, are significant indications of the direction in which the practice of medicine is developing. It is of the utmost importance that American physicians know the facts regarding these efforts in other countries to secure under governmental supervision insurance against illness, accident and old age. How soon this matter will be a live issue in this country, it is difficult to say. That it will sooner or later be an important question in some form or other admits of little doubt.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: State Society and Homeopathic, Dover and Wilmington, Dec. 9-11. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: Armory, Louisville, Dec. 11-13. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Regular, 1211 Cathedral St., Baltimore, Dec. 9. Sec., Dr. J. McP. Scott, Hagerstown.

OHIO: Columbus, Dec. 9-11. Sec., Dr. Geo. H. Matson, State House.

PENNSYLVANIA: Philadelphia, Dec. 2-4. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Richmond, Dec. 16-19. Sec., Dr. Herbert Old, Norfolk.

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that from July 21 to October 16, 1913, 10 candidates were licensed through reciprocity. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1906)	Maryland
College of Physicians and Surgeons, Chicago	(1910)	Illinois
Northwestern University	(1911)	Illinois
Indiana University	(1911)	Indiana
College of Physicians and Surgeons, Baltimore	(1911)	W. Virginia
University and Bellevue Hospital Medical College	(1911)	New York
Cleveland-Pulte Medical College	(1912)	Ohio
Western Reserve University	(1911)	Ohio
University of Pittsburgh	(1908)	Penna.
Marquette University	(1909)	Wisconsin

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, Oct. 7-9, 1913. The number of subjects examined was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 30, of whom 21 passed and 9 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1912) 78.6,	82.9
Hahnemann Med. Coll. and Hospital of Chicago	(1902)	80
Northwestern University Medical School	(1884)	77.5
Rush Medical College	(1913)	82.6
State University of Iowa College of Medicine	(1907)	79.5
College of Physicians and Surgeons, Baltimore	(1911)	78.2
Johns Hopkins Medical School	(1908)	83.7
Detroit College of Medicinie	(1904)	78.8
University of Michigan, Department of Medicine and Surgery	(1906)	84.7
St. Lovis Univ., School of Medicinie (1908) 80.8;	(1912)	83.2
John A. Creighton Medical College	(1912) 78.3,	84.2
Dartmouth Medical School	(1911)	79
Albany Medical College	(1906)	76.7
Starling Medical College	(1898)	78.5
Jefferson Medical College (1907) 81.4;	(1912)	77.6
Marquette University (1911) 77.8;	(1913)	77.8

FAILED

College	Year Grad.	Per Cent.
George Washington University	(1907)	69.2
College of Physicians and Surgeons, Chicago	(1910)	69.7
Kansas Medical College (1907) 69.6;	(1911)	71.9
University of Louisville, Medical Department	(1908)	59.2
Eclectic Medical University, Kansas City	(1908)	67.7
Marion-Sims-Beaumont Medical College	(1903)	62.2
John A. Creighton Medical College	(1909)	71.4
Marquette University	(1910)	67.1

Pennsylvania June Report

Dr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports the written examination held at Philadelphia, Pittsburgh and Harrisburg, June 23-25, 1913. The number of subjects examined in was 6; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 281, of whom 232 passed and 49 failed. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined
Georgetown University	(1912)	2
Chicago College of Medicine and Surgery	(1913)	1
University of Louisville	(1889) (1912)	2
Johns Hopkins University	(1913)	3
College of Phys. and Surgs., Baltimore	(1912) (1913,2)	3
University of Maryland	(1913)	3
Maryland Medical College	(1911) (1912,3)	4
Baltimore Medical College	(1912; (1913,3)	4
Boston University	(1911)	1
College of Phys. and Surgs., St. Louis	(1899)	1
University and Bellevue Hosp. Med. Coll.	(1907)	1
Universit	(1912)	1
Columbia and S., N. Y.	(1912)	1
Eclectic anati	(1913)	2
Clevelanc and Surgeons	(1906)	1
Univ. of	11,2) (1912,8) (1913,43)	53
Jefferson Med. Coll.	(1909) (1911) (1912,2) (1913,33)	37
University of Pittsburgh	(1912,8) (1913,36)	44
Medico-Chirurg. Coll. of Philadelphia	(1912,7) (1913,16)	23
Temple University	(1912,6) (1913,8)	14
Hahnemann Medical College and Hospital, Philadelphia	(1908) (1912,4) (1913,13)	18
Woman's Med. Coll. of Penna.	(1895) (1912,2) (1913,9)	12
Beirut Syria College	(1908)	1

FAILED

College	Year Grad.	Per Cent.
Georgetown University	(1911)	58.7
Howard University	(1913)	68.2
Chicago College of Medicine and Surgery (1911) 63.7; (1913) 65.7, 68.8.		
University of Louisville	(1913) 55.1,	71.4
Baltimore University	(1900)	67.6
Maryland Medical College (1912) 47.8, 49.9, 50.8, 52.6, 59.6, 64.4, 72.3; (1913) 69.4.		
University of Maryland	(1913)	73.1
College of Physicians and Surgeons, Baltimore	(1913)	69.6
Harvard Medical School	(1913)	70.7
Barnes Medical College, St. Louis	(1899)	64.3
Leonard Medical School	(1911)	52.7
Cleveland-Pulte Medical College	(1913)	63.4
Medico-Chirurgical College of Philadelphia (1909) 70.2 (1912) 72.3, 72.9, (1913) 71.6.		
Jefferson Medical College (1912) 61.9, 67; (1913) 67.6, 68.8, 70.3.		
1912) 66.2; (1913) 69.5, 70.2, 71.3. 65.9, 68.2, 71.8.		
	(1911) 70.6; (1912)	70.9
Hahnemann Med. Coll. and Hospital, Philadelphia	(1912)	72.5
Woman's Medical College of Pennsylvania	(1913)	72.7
University of Toronto	(1908)	66.7
Queen's University	(1908)	68.2
University of Naples	(1908) 36.4,	63.6
University of Athens, Greece	(1906)	52.1

PHYSIOLOGY, PATHOLOGY, BACTERIOLOGY

1. Discuss the evils which may follow the presence of adenoids in the posterior nares. 2. Given a case of pernicious anemia, describe the microscopic blood-picture contrasting this picture with that of normal blood, and state the effect of this disease on the normal functions of the blood. 3. Name three most usual causes of death of bone; describe the processes of death of bone and the sequelae of such condition. 4. Given a case of diphtheria, describe the local lesion, give the laboratory methods of verifying your diagnosis, and when as a sequela the heart becomes affected, show how the normal functions of this organ are interfered with. 5. Discuss hyaline, granular and fatty casts; (a) as to the local conditions usually present with each variety; (b) as to the impairment of the normal functions of the kidney in each condition. 6. Given an acute case of peritonitis, (a) state how the toxins are absorbed; (b) why the Fowler (sitting) position and enteroclysis are rational procedures. 7. In case of chronic alcoholism state the pathological changes which may take place in the liver and show how these changes interfere with the normal functions of the liver. Contrast pathological changes of advanced syphilis of liver. 8. In carcinoma of the cervix name the most common variety; describe the gross and microscopic appearance and describe the methods and avenues of extension. 9. Describe the lesions, outline the laboratory technic of demonstrating the causes of purulent perforative otitis and show the possible sources of infection and dissemination. 10. In a case of acute anterior poliomyelitis (infantile paralysis) describe the local lesion and show how the normal functions of the cord are disturbed.

PHYSIOLOGICAL CHEMISTRY

1. Describe the chemical composition of blood, giving approximately the percentage amount of the various component parts. 2. What is indican? Where is it formed? By what process is it formed? Give a test for its presence in urine. 3. Name the principal waste products of the human body. By what excretory organ is each eliminated? 4. How would you determine chemically whether or not any given stain was due to human blood? 5. Where and in what form do the following chemical elements occur in the human body; 1. Iron; 2. Iodin; 3. Phosphorus; 4. Sulphur; 5. Fluorin.

DIAGNOSIS, SYMPTOMATOLOGY, MEDICAL JURISPRUDENCE AND TOXICOLOGY

1. Enumerate the symptoms and physical signs in the early stage of acute peritonitis. 2. In syphilis, differentiate. (a) Chancre from epithelioma, (b) Secondary skin lesions from the exanthamata, (c) Tertiary skin lesions from other chronic skin diseases. 3. Enumerate the symptoms of catarrhal jaundice (duodeno-cholangitis): name two other diseases of this region that may resemble it, and differentiate them from catarrhal jaundice. 4. State the name and describe the distinctive symptoms of epilepsy resulting from traumatism; how may this form be differentiated from the non-traumatic forms of epilepsy. 5. Enumerate the cardiovascular and the cerebral symptoms of arteriosclerosis and conditions that may follow. 6. Enumerate the symptoms of tetanus; (a) give the etiology, (b) method of invasion, (c) name a toxic condition with which it may be confused and differentiate them. 7. Enumerate the symptoms and describe in detail the physical signs of chronic interstitial pneumonia (fibroid pneumonia) and differentiate it from pulmonary tuberculosis. 8. Enumerate the symptoms of tartar emetic poisoning; (a) name a disease it may resemble and differentiate it, (b) name three (3) antidotes. 9. Enumerate the symptoms of opium poisoning; (a) what are the most favorable conditions for its absorption, (b) differentiate it from apoplexy and uremia. 10. (a) Describe in detail the appearance of an infant born alive at full term; (b) the appearance of an infant dead born at term; (c) the appearance of an infant having died some time before birth (d) and a method by which it is conclusive that the infant had breathed.

OBSTETRICS, GYNECOLOGY, HYGIENE AND PREVENTIVE MEDICINE

1. Given a pregnant woman (the first three months) how would you determine whether she might be suffering from abortion or from extra-uterine pregnancy; in case of abortion how would you treat the case (omit description of operations). 2. If a woman in labor should suddenly develop the symptoms of collapse or shock, name three principal causes in the uterus which may be responsible for her condition. How would you manage the case (omit description of operations)? 3. Given a woman with a posterior displaced non gravid womb, how would you distinguish it from (a) fecal matter in the rectum, (b) a small pelvic tumor? What is the most usual cause of such displacements? How would you prevent it? 4. Name three principal toxemias of pregnancy together with their symptoms. Give the treatment of any one selected. 5. If a woman consults you as to her future labor and places herself under your care, up to the time she falls into labor detail the steps you must take in order to secure her safety. (State in full tests that should be made). 6. When is the induction of premature labor justifiable. Detail its status as related to other procedures in cases of contracted pelvis. 7. Enumerate four abdominal enlargements which may be mistaken for advanced pregnancy (seven months or more) and differentiate them from such possible pregnancy. 8. Name the diseases and methods of transmission caused by (a) house fly, (b) rat, (c) mosquito, (d) bedbug, (e) tsetse fly, (f) wood tick. 9. If an analysis of water revealed the presence of nitrites or nitrates, or both, why would this indicate its unfitness for drinking purposes. How could it be rendered safe? 10. State articles of food that are advisable in the following diseases: (a) diabetes, (b) tuberculosis, (c) anemia, with reasons for the recommendations.

PRACTICE, THERAPEUTICS, MATERIA MEDICA

1. Outline the management of a case of diphtheria in a child six years old; state the important conditions to be met, with definite methods of meeting those conditions, and give reasons for the use of each remedy selected. 2. Outline the general management of a case of pneumonia in an adult; state three remedies that may be used in this condition, with definite indications for the employment of each. 3. In a case of nephritis, indicate the various conditions that must be considered; state the appropriate remedies for each condition and give definite reasons for the use of each remedy. 4. In acute endocarditis, state the ordinary causes and possible complications, outline the management and give reasons for the employment of the more usual remedies. 5. In acute gastro-intestinal catarrh outline the several indications for treatment, with definite instructions as to remedies and reasons for their use.

SURGERY, ANATOMY

1. Describe an approved method of performing vaccination; enumerate such complications as may arise and state the reasons for those possible complications. 2. In fracture of the lower end of the radius ("Colles' fracture") state (a) the usual displacement, (b) the muscles causing same, (c) the method of reduction. 3.

State, first, what you consider the favorable conditions in a patient to whom is being administered (a) sulphuric ether, (b) chloroform; second, the unfavorable or alarming conditions that might be present with either drug. 4. Name three forms of bowel obstruction; outline briefly the symptoms that are common to each; outline a surgical operation that may be required in any one form selected. 5. Describe the normal relationship of the bony landmarks at the elbow-joint; state the alterations that may occur in these landmarks in (a) anterior luxation, (b) posterior luxation, (c) fracture of the olecranon process. 6. In fracture of the neck of the femur, state the usual deformity and the anatomical explanation of the same. Describe an external test line used in diagnosis of some hip-joint conditions. Briefly outline two methods of treatment of fracture of the neck of the femur. 7. Name three forms of abscess that may occur in the vicinity of the rectal orifice; state the directions that pus may burrow if left unchecked; briefly outline the surgical treatment of two forms of abscess. 8. State two paths along which infections may reach the kidneys. State the local and constitutional symptoms of pyonephrosis. 9. If called into the country to do an appendectomy; make complete lists (a) those things that you would desire them to furnish at the house of the patient, (b) those things that you would bring with you. 10. Describe methods of treatment of patient who has been subjected to an electrical current of high voltage.

Book Notices

The Psychoneuroses and Their Treatment by Psychotherapy. By Prof. J. Dejerine, Professor of the Clinic for Nervous Diseases of the Faculty of Medicine of the University of Paris, and Dr. E. Gauckler. Authorized Translation by Smith Ely Jelliffe, M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System, Post-Graduate Medical School and Hospital, New York. Cloth. Price, $4. Pp. 395. Philadelphia: J. B. Lippincott Company, 1913.

In the present conflict of opinion as to the most plausible theory concerning psychotherapeutics, the most important part of the subject, namely, the actual practice of psychotherapy, seems to have been overlooked. In other words, we hear a good deal about this or that theory of psychotherapeutics, but little or nothing is done in the way of real psychotherapeutic endeavor. The book before us represents a sincere effort on the part of its authors not only to practice psychotherapy, but also to give the reader guiding principles. A beginning was made several years ago when Dr. Smith Ely Jelliffe translated Dubois' popular book on the subject. Since then the practitioner has been eagerly awaiting a work which might furnish him with methods and results. The work under review, also translated into English by Dr. Jelliffe, embodies the principles and practice of psychotherapy as followed by Dejerine. The book is divided into three parts. The first section is devoted to a study of the symptoms which may be observed in the course of the psychoneuroses. This is a purely analytic study, in which symptoms are traced to their supposed origin and proved to depend almost entirely on mental and moral causes, with the greater emphasis on the moral. In the second division of the book, which might well be called the psychologic portion, the authors endeavor to explain the general mechanism underlying the causation and continuance of the symptoms constituting the psychoneurosis. In the third division the authors set forth the psychotherapeutic measures to be employed in the treatment of the psychoneuroses. Quite naturally we are more interested in the last portion of the book than in the preceding ones, as the distinctive features lie in its psychotherapy. Dejerine, who had ample opportunity to study the psychoneuroses, had made the discovery early in his career that the causes of hysteria and neurasthenia must lie outside the objective symptoms, since little or no success was obtained from the employment of medicinal and mechanical measures. Further, he discovered, contrary to the views expressed by Dubois, that to obtain results the treatment must not be based solely on reasoning and argument. "If reason and argument were sufficient to change one's mind," he says, "the neuropaths would find in the writings of the moralists and philosophers and spiritual advisers everything they would need to reconstruct their morale, and consequently their physical well-being; and therefore they would have no need of a psychotherapeutist." According to Dejerine, reasoning by itself is insufficient to produce cures—the emotional element is just as important, if not more so. It is the feelings or emotions—the morale—which produce beneficial results, not the mere idea; the idea never moves one unless it is accompanied by an emotional appeal which makes it acceptable to consciousness and thus brings about conviction. For this reason he deprecates the use of hypnotism and suggestion in the waking state, both of which are appeals to the subconscious, unfeeling part of human nature. In order to test his views an isolation and psychotherapeutic ward was established in his service at the Salpêtrière. Here several thousand patients who could not afford a sojourn in a sanatorium received free treatment. The results were highly satisfactory and far surpassed the author's expectations. This success he attributes entirely to the so-called moral treatment. The book is well written and conducive to original thought.

Elements of Bacteriologic Technic. A Laboratory Guide for Medical, Dental and Technical Students. By J. W. H. Eyre, M.D., M.S., F.R.S., Director of Bacteriological Department of Guy's Hospital, London, and Lecturer on Bacteriology in Medical and Dental Schools. Second Edition. Cloth. Price, $3 net. Pp. 518, with 219 illustrations. Philadelphia: W. B. Saunders Company, 1913.

This edition contains much that is new in addition to a revision of all the old matter. As a laboratory guide for students in bacteriology, however, the book is somewhat too elaborate in most of its discussions and falls short of the mark in others. For instance, the book gives twelve methods for making anaerobic cultivations and offers no discrimination as to the one to be employed. Elaborate apparatus is pictured, which for the ordinary man is absolutely useless. On the other hand, the book makes no mention whatever of methods for preparing vaccines, although it attempts to give a complete discussion on immunization. Some of the illustrations are so elementary as to be hardly worthy of the space they occupy and others so elaborate as to be useless for anyone but the specialist. As a book of reference on the subject it would seem to have some place in medical literature, but as a laboratory guide for medical, dental and technical students, which it presumes to be, it can hardly be said to fulfill its purpose.

Die Nervenpunktlehre. Von Dr. A. Cornelius, Oberstabsarzt a. D. Volume II; Neurologie und Nervenpunktlehre. Paper. Price, 7 marks. Pp. 303. Leipsic: George Thieme, 1913.

After perusing this verbose and self-laudatory volume the reader is left with the painful impression that, like most other countries, Germany suffers from charlatanism. The author under the guise of science attempts to prove that almost all diseases that human flesh is heir to have their origin in disordered peripheral nerves; not the peripheral nerves that anatomists have taken pains to outline and describe, but nerve-points which only the author has discovered to be at fault. The inference is that he, the discoverer of this unknown territory, must become the guide. In a previous work he even gives a complete chart of these nerve-points, which strongly reminds one of Dr. Cook's map of the north pole which he has never seen. The author, like his compatriot, Dr. Friedmann, has been thoroughly discredited in his own country.

When to Send for the Doctor and What to Do Before the Doctor Comes. By Frieda E. Lippert, M.D., Assistant at the Psychological Clinic, University of Pennsylvania, and Arthur Holmes, Ph.D., Assistant Professor of Psychology, University of Pennsylvania. Cloth. Price, $1.25 net. Pp. 265, with 17 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This little book gives brief and pertinent directions for determining whether or not a child is ill; if it is ill what the probable trouble is and what is best to do until expert advice is available. The directions cover speech defects, minor deformities and mental backwardness. It ought to be very useful to the mother and the teacher.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M., Surgeon to the General Hospital, Kansas City, Mo. Sixth Edition. Cloth. Price, $7 net. Pp. 1,251, with 1,438 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This edition of Binnie's manual shows the continuous improvement which has characterized previous editions. Considerable space is given to the more rare and difficult operations, such as hypophysectomy, and to good discussions of the many operations familiar to all surgeons. Chapters devoted to operations on the stomach have been practically rewritten

Medicolegal

Construction of Statute Relative to Privileged Communications —What Adjudged Waivers—Application to Several Physicians

(Epstein vs. Pennsylvania Railroad Co. (Mo.), 156 S. W. R. 699)

The Supreme Court of Missouri reverses a judgment of the St. Louis Court of Appeals which affirmed a judgment for the plaintiff for personal injuries and held inadmissible the depositions of a Dr. Phelps and a Dr. Christie, both of whom were present while the plaintiff was being examined and treated and consulted with touching his injuries by a Dr. Elston, who was permitted to testify for the defendant without any question of statutory privilege being raised.

The Supreme Court, adopting the opinion of Faris, J., delivered in Division 2, says that no point was made touching whether or not Christie and Phelps fell under the facts within the category of those to whom the statutory privilege applied; it seemed to be tacitly conceded by the defendant that they were within the rule. Implied waiver arising from the facts was alone relied on. From the language of the statute, as well as from the trend of decision, the court deems it plain that these physicians were incompetent, unless from the facts implied waiver might be deduced.

The Missouri statute provides, that "the following persons shall be incompetent to testify . . . a physician or surgeon, concerning *any information* which he may have acquired from any patient while attending him in a professional character, which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon." It will be noted that there is no provision touching waiver or any method of express waiver noted in this statute. Analyzing this clause, we see that all that is required is that the information be obtained by the physician while attending the patient in a professional capacity (thus excluding the necessity for the existence of an express, or even implied, contractual relation for hire, and including all cases in which from the nature of the services intended, or rendered, the relation of physician and patient arises). The information must be acquired while attending the patient in a professional capacity (thus excluding information obtained by a physician on a call on his patient in a non-professional capacity, for example, as on a social call or a call on other than professional business). And the information obtained in the capacity and under the circumstances above set forth must be such as is necessary to enable the physician to prescribe (thus excluding and rendering competent facts outside, and not cognate to, the patient's injuries and diseases).

The incompetency of a physician to testify rests solely in statutory enactment. It was unknown at common law, where the rule was that whatever silence might be enjoined on the physician outside of a court of law by the ethics of his profession, yet within a court of law he must unbosom himself of all facts within his knowledge touching the matter under inquiry, however obtained, present other requisites of admissibility.

Not all of the states, perhaps a bare majority only, have such a statute. It will not avail to say that the court is bound to a hard and fast construction of the statute—that it is to the court an *iron-bound law of the Medes and the Persians*, eternally unchangeable—and that the court cannot by construction engraft on it a single abatement, in jot or tittle, by invoking the doctrine of waiver, because, forsooth, there are no waivers or provisos therein expressly written. The court has, as has every civilized court where the statute exists, already engrafted by construction waivers on it, which are now so well settled as not to admit of question or quibble; for example, the patient may waive the privilege by calling his physician as a witness; the insured may waive the privilege, in any subsequent action, by contract in the policy of insurance. Other waivers, not so well settled, but well decided and resting on the soundest logic and reasoning, are (*a*) that if a physician to a patient-party in an action be called in the first trial by the adverse side and be allowed to testify without objection, then such act is a waiver of objection in any subsequent trial; (*b*) if the adverse side examine the physician of the plaintiff as to the fact of treatment, cross-examination by the patient's attorney as to the patient's condition operates as a waiver; (*c*) by failing to object to the question, the answer to which would involve disclosures of privileged communication between the physician and himself, the patient waives the privilege; and it has been said that it is too late to object, if the question has already been answered, that a motion to strike out the answer will not lie; and (*d*) by himself giving in evidence *voluntarily* the facts and nature of his ills and the communications had with and acts done by his physician in treating him, the patient waives his privilege to object.

It would seem, in reviewing the authorities, that much of this court's difficulty in harmonizing holdings has arisen from its efforts, and the efforts of other courts as well, to follow the holdings of the New York courts, which, however, touching the matter of waiver, are "cabin'd, cribb'd, confined," by their statute, which provides that the privilege granted to physicians of not testifying shall apply unless its provisions "are expressly waived on the trial or examination, by the person confessing, the patient or the client." This court concludes then, that indubitably the privilege of not testifying, as granted to a physician by the Missouri statute, is a privilege inuring alone to the patient, which the patient may waive, either expressly or by implication.

Was the testimony of Drs. Christie and Phelps, under the facts and the law, competent? If it was so competent, such competency, the court must concede, arose on waiver by the plaintiff in some wise occurring from what he said and did, or neglected to say or do; for the court thinks that these physicians, though not connected with the hospital, and inferentially only proffering aid in a great calamity for humane reasons, were yet in the shoes of those privileged by statute, absent waivers. Furthermore, the court thinks that these two physicians were competent witnesses, and that the court below erred in holding the contrary. Since the plaintiff had himself voluntarily gone on the stand, and, in his case in chief, as a witness for himself, laid bare for lucre's sake all of the secrets of his sick-room; since he had told and retold what Dr. Elston, his physician, said to him, and what he said to Dr. Elston; since he had told the precise nature of his alleged hurts as he said Dr. Elston found them, and since he had also voluntarily related the treatment professionally given to him by Dr. Elston, he waived the competency of other physicians, also there present, having knowledge of the identical facts.

Chief Justice Lamm, in a concurring opinion, says that, as he sees it, the rule announced does not come to destroy the statute, but to fulfill the statute in its very soul and sense; that is, its true intendment and meaning. It goes without saying that waiver should not be applied to every case mechanically and without reference to the facts, but with just discrimination and in view of the facts of each case. So used it is constantly applied in court as a most wholesome and useful device in reaching a just end.

While some of the language of the opinion is a little broad, yet such general language must be read with the concrete case held in judgment, and, so read, it does not mean that if a litigant uses a physician as a witness, thereby, and without more, every other physician he has ever had at other times, places or occasions may be thereby allowed to break the seal of professional secrecy. Nor does it mean that, a litigant saying or doing nothing of substance to lift the statutory veil of secrecy imposed on sick-room disclosures to his physician (arising by examination, conversation or consultation there), his physician may be allowed at the beck and call of the adverse party (and without leave or waiver by the patient party) to himself break the virgin seal of secrecy or lift its veil. If the privilege is personal to the party, and is thereby held in the hollow of his hand, why may it not be waived by act, conduct or word for the time, place or occasion in hand? If once waived, must the waiver not be held to operate to an extent limited only by logic and reason? The scandals in beating down the truth arising from a too harsh and literal interpretation of this law (if unaided and unrelieved by waiver) every one of us knows by experience and observation in the court-room. The application of such law must be with discrimination, so that it may have the legislative effect intended for it, and yet the investigataion of truth be not unnecessarily thwarted.

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
American Physiological Society, Philadelphia, Dec. 27-29.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Society of American Bacteriologists, New York, Dec. 31-Jan. 2.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Ninth Annual Meeting, held at New Orleans, Oct. 23-25, 1913

The President, Dr. Albert E. Sterne, Indianapolis, in the Chair

Some Phases of Kidney Surgery

Dr. Henry J. Scherck, St. Louis: The objection to fixation of a movable kidney is that we fix rigidly an organ which normally has considerable motion. Further, we seldom remove the symptoms for which the operation is done, for in many patients the kidney condition is only one expression of a general enteroptosis, so that less benefit is derived from the operation than would have been the case had the patient been given a rest cure, fattening process and suitable binder.

I do not believe that operation should be done in every case of stone in the kidney. We should have at least some other indication and no pronounced contra-indications before performing a nephrotomy. In traumatism to the kidneys my practice is to wait, and be governed by the subsequent indications before operating. The majority of these patients recover without operation, provided infection does not take place. The operation can be delayed unless the patient shows symptoms due to continued loss of blood.

I have had occasion to operate in quite a number of hypernephromas. Unfortunately, in the majority of the cases the diagnosis was made rather late, and the records show recurrences and metastases in the majority of those operated on. Practically, however, a sufficient percentage of cases with operation show results which warrant us in operating as soon as we can make a diagnosis, either from symptoms or by exclusion. Persistent hematuria, either intermittent or constant, without evident explanation, has determined me in many cases and is my present indication for an exploration, as in the presence of such symptoms I suspect hypernephroma. I have noted in many cases the predilection of hypernephroma for bone metastases.

The Civic Importance of Some Phases of the Neuroses with Suggestions as to Their Control

Dr. Albert E. Sterne, Indianapolis: Of the many medical questions of civic importance probably none has ired reater prominence than that of drug addictions. morale, an health or precongenital defect in loss in earning they an economic civic problem of the highest order. to ations it touches many social conditions. Its the vice situation brings it startlingly into It is safe to assert that 80 per cent., prob- t., of commercial white slaves and their me rs of drugs. There is not a single community in this country or anywhere else in the civilized world which has not suffered from the effect of this great social disorder concealed though it be as far as possible. Various states have legislated or sought to legislate and legitimatize the traffic in habit-inducing drugs. Indiana last year passed a law regulating the sale and use of these drugs, but the law is too faulty to be of much use. It was drawn by druggists, wholesale and retail, and never was designed to wholly prohibit trade in these nefarious stuffs. In Ohio a somewhat similar law is being urged. In several other states an analogous situation prevails. This whole question is not one limited to any city, state or states, but is country-wide and can be solved only by the federal government. Restrictive legislation and control by states will help to some degree, but unless some laws are obtained and are enforced by all states, anything like adequate results would be mere speculation.

I would emphasize the national regulation of all habit-forming drugs of every type, but especially those of opium and cocain derivation. Concisely my plan is: 1. The establishment of a national warehouse or central depository for imported opium and cocain and like raw drugs. 2. The establishment of regional or district depositories either for a group of states or, if deemed advisable, for each state, either for raw material, or manufactured products, or both. 3. The appointment of authorized pharmaceutical agents to convert the crude products into commercial form. These three departments would constitute the business plan, the proper operation of which would enable almost perfect control of raw material and finished product.

Child Culture the Function of Organized Medicine

Dr. Henry B. Favill, Chicago: Any improvement in the conditions of future generations must be accompanied by an improvement in quality. The question is, How can the human stock be improved? The control of the unrestrained breeding of defectives is immediate and urgent. This, however, is only a small part of the problem. The real question is not how to prevent the bad, but how to develop the good. The difficulty is that our knowledge of heredity is not as yet sufficient to enable us to control conditions. The most that can be accomplished at present is the creation of a public sense of conscience and responsibility, at the same time making every effort to increase scientific knowledge regarding the factors involved in heredity and eugenics. This is a field in which physicians must be able to qualify as experts. As a whole, the medical profession has not hitherto risen to the situation. Legislation cannot proceed in advance of public opinion, and public opinion will not allow an invasion of private rights without overwhelmingly positive evidence being presented. This evidence must be secured and properly presented to the public by scientific physicians, if a public feeling of social responsibility is to be developed.

Child psychology and proper methods of pedagogy are also involved. Teachers cannot be expected to solve the problems involved without assistance from physicians. Parents are in need of assistance from both physicians and teachers. We must make ourselves competent advisers to the parent and the teacher in order to develop in each child the best of which it is capable.

Sanitary science can control mass conditions, but great progress in the physical welfare of the race will not be made until individuals are thoroughly trained in ideals as to health standards and their obligations to others. It is a deplorable fact that in medical schools in this country, instruction in personal hygiene is almost unknown, and instruction in psychology is unheard of. The only explanation of this defect is that the profession has not as yet realized its responsibility in these directions.

The Council on Health and Public Instruction of the American Medical Association, has undertaken to ascertain the exact public health situation in this country by inaugurating a survey of all public health agencies. This involves a survey of the public health work being done by the national government and a comparison of federal health work in this country with that of other civilized nations, as well as the development of practical plans for the establishment of a national Department of Health that will be second to none in importance in the government. Of still greater importance in this country is the state health work. Yet no one knows what is being done by the various state boards of health, because there is no standard or basis of camparison. The council has undertaken a detailed and painstaking study of this question. A trained sanitarian of the highest rank is about to make a personal study of every state board of health to discover the work, powers, equipment and support of the health department in different states. After this has been completed, a similar survey of the municipal health work is planned. Aside from official health activities, there are in this country many organizations springing from private initiative and supported by popular subscriptions. The importance of these organizations cannot be overestimated. Through a central committee, a similar survey of the work of these organizations will be carried on.

While the council is carrying on these investigations as to the existing health conditions, it has also started definite measures for the education of the public. A press bureau has been organized, which sends out to five thousand newspapers every week a press bulletin dealing with important public health subjects. The newspapers have recognized the fact that there is no sinister purpose or private interest behind this effort and they are using freely the material thus sent out. A speakers' bureau has been established, through which 130 of the leading physicians of the country are offered to local organizations for addresses on public health without expense to the local body. The speakers donate their time, the council pays their traveling expenses and the local organization furnishes the meeting place. A bureau of literature is also preparing and sending out pamphlets on public health questions, written for the instruction of the people. Many special committees are at work on special subjects.

A medicolegal bureau has been established to study public health laws in this country and others, and to draft, with the assistance of prominent educators, social workers, lawyers, judges, governors, and others, model laws for the protection of the public health. We recognize that in this work the legal point of view must be common.

Endocarditis with Special Reference to Its Etiology

Dr. Robert H. Babcock, Chicago: The tonsil is the most frequent atrium of infection in rheumatic fever and endocarditis of whatever type. I have made it a rule to investigate the condition of the tonsils in all cases of acute or chronic valvular diseases coming under my observation, and I invariably discover evidence or obtain a history of previous tonsillar infection. The main reason, perhaps, why the etiologic influence of follicular tonsillitis is not recognized more often is that the tonsillar involvement is very apt to precede the rheumatism by a number of days or even weeks. This is owing to the fact that time is required for the hemolytic streptococcus causing the tonsillitis to become converted into the rheumatic streptococcus. When this has been accomplished the latter strain is taken up by leukocytes and carried into the blood, and then is conveyed to the joints or to the capillaries of the valves where they set up the characteristic inflammation, and we see the phenomena of articular rheumatism and endocarditis, or in the case of a child only an endocarditis without joint involvement.

If the cardiac structures are not too extensively or malignantly affected the patient recovers in the course of time, but with a permanent valve lesion. In most cases the person suffers from recurrences of the rheumatism either acutely or in a mild subacute form, or every now and then he has an attack of tonsillitis of greater or less severity, usually the latter. Not infrequently the child has attacks of stomach trouble that puzzle the doctor as well as the parents. Such attacks are generally attributed to indiscretion in diet.

In many cases I have discovered slight, but to my mind convincing, evidence of appendiceal mischief and have attributed these stomach attacks to acute exacerbations of a chronic appendicitis. Generally, the family physician or the parent has been unwilling to accept the diagnosis and the case has been allowed to go on.

The *Streptococcus viridans* is a strain or modification of the pneumococcus. It does not itself occasion tonsillitis, but finds an unhealthy tonsil good soil for its growth. Consequently, it can be taken up by the leukocytes and carried into the blood-stream to lodge in the capillaries of the heart valves in the same manner as are the germs of rheumatism. If the capillaries are fairly abundant, as in the young, the bacteria may be attacked by the phagocytes and destroyed before they have time to grow and multiply. But if the capillary supply to the valves is poor, as is the case with sclerotic valves from former endocarditis, then leukocytes cannot get at and destroy the streptococci which, therefore, grow rapidly and produce massive vegetations.

Take care of the throats of children by the removal of adenoids and the correction of any other defect that predisposes to throat infections. Never regard any sore throat or tonsillitis in the young as trifling, and whenever a child displays languor, slight fever, etc., examine the throat. In any person with valvular disease who has recurring sore throat or rheumatic pains pay strict attention to the care of the throat, and if the tonsils are diseased, even though not enlarged, have them taken out, not merely clipped. Do not pass over recurring attacks of so-called indigestion with fever in a child with an endocardial lesion as merely a "stomach attack." Bear in mind the possibility of appendicitis in association with or as a result of rheumatic infection and tonsillitis, and direct particular attention to the appendix. A chronically infected appendix may serve as the atrium of infection.

The Functional Testing of the Cardiac Power

Dr. Charles Spencer Williamson, Chicago: In diseases of the cardiovascular apparatus, the examination of the quietly resting patient gives us no clew as to the functional efficiency of his heart, unless manifest signs of cardiac insufficiency are present. The most satisfactory method of arriving at a knowledge of the functional efficiency of the heart is by subjecting the patient to exercise tests. None of the methods which have been as yet devised are free from sources of error, and none furnishes a numerical estimate of the cardiac strength.

It is possible to obtain a very accurate estimate of the functional heart power by submitting the patient to an accurately measured exercise, such as climbing a certain number of steps, and by observation of the pulse, respiration and blood-pressure, together with the quickness of the return of these to the normal. The severity of these exercises should be strictly individualized, and in every case adjusted to the patient's general muscular development and conditions. For more scientific work, the only method which is capable of giving numerical results is that of obtaining the size of the heart before and after exercise, as determined by the orthodiagraphic method or some of its modifications.

Thrombosis and Embolism

Dr. W. L. Bierring, Des Moines, Iowa: In a series of seven cases of circulatory accidents, the acute infectious process in four instances was an acute tonsillitis, and one example of acute pleurisy and pneumonia, influenza (lymphadenitis), and appendicitis. As regards localization, the posterior tibial artery was involved in two cases, the middle cerebral three times, the axillary artery once, with one example of femoral thrombophlebitis and two of cerebral sinus thrombosis. In two cases multiple embolism occurred in the same patient. In summarizing our series of cases, which were all instances of acute infection accompanied by general bacteriemia or septicemia, tonsillitis, and apparently acute infection of the upper air passage, played a prominent rôle.

DISCUSSION ON DISEASES OF THE HEART

Dr. James Birney Guthrie, New Orleans: For a number of years I have been an exponent of the light percussion method of outlining the borders of the heart. The procedure of outlining the heart by percussion or roentgenoscopy before and after cough, timing the return to the original size of the outline, is a most valuable index of the integrity of the heart muscle. The healthy heart dilates on coughing to a degree perceptible during roentgenoscopy, but not appreciable by percussion. The time factor is quite as important as the measurement of the outward displacement of the right heart border. The graver the heart weakness, the longer the dilatation lasts. The longest cough dilatation time observed so far has been fifteen minutes and the shortest five seconds. This statement is based on careful examination of over one hundred cases. It is probable that this range of cough dilatation time will be extended on further observation.

Dr. Albert E. Sterne, Indianapolis: I wish to report a case of chorea, arthritis and endocarditis in a girl. A month or so before I saw her she had fallen down stairs and cut her forehead. The injury seemed trivial, but the wound did not heal, and in spite of every measure at the hands of an excellent surgeon the wound continued suppurating. In the course of the second week after the injury she developed polyarthritis. In the course of a few days, after the joint invasion, she developed a profound and severe form of chorea of the ordinary type. These cases usually develop severe infectious endocarditis, and in this case, in the course of a few days, the endocardial lesion occurred. Under careful treatment this child seemingly did very well, but she did not regain her strength; the joint condition practically disappeared, the chorea subsided, and the heart murmurs lessened, but did not entirely disappear. In about four weeks after the time the heart lesion first manifested itself the joints again became inflamed; the chorea again became severe; the heart sounds again became murky, and the child died of all the symptoms characteristic of thrombosis and embolism of the several sinuses.

Dr. F. M. Pottenger, Monrovia, Cal.: In advising the removal of tonsils I have sometimes wondered whether or not in removing them we were not taking away a source of protection to the patient. I have had the tonsils of my own children removed, but at the same time I feel that probably we are doing wrong in taking the attitude we do toward the tonsil as a whole.

Dr. Walter L. Bierring, Des Moines, Iowa: It is a matter of great interest to note that the relationship existing between focal infection, particularly of the biliary or intestinal tract, and its influence on the heart muscle and on the endocardium, is being corroborated by the work of Rosenow. Rosenow has established that acute infection of the tonsils, the endocardium and the appendix are all the same. He has gone still further and by modifying the organisms has produced experimentally cholecystitis with the same organism, and in another dog has produced typical round ulcer of the stomach.

Dr. Robert H. Babcock, Chicago: We are not justified in recommending the removal of healthy tonsils, whatever their exact function may be, but when a tonsil is no longer healthy, when it is diseased, I believe that the tonsil should be enucleated to safeguard the patient.

Differentiating Between Active, Quiescent and Healed Tuberculosis by the Character of the Reaction to the Cutaneous Tuberculin Test

Dr. F. M. Pottenger, Monrovia, Cal.: A positive clinical history, suspicious signs within the chest, and a maximum reaction to tuberculin within the first twenty-four hours give us grounds for making a diagnosis of active tuberculosis. With a questionable clinical history, questionable signs on physical examination, a reaction to tuberculin reaching its maximum after twenty-four, or particularly after thirty-six hours, I believe we are safe in saying that we are dealing with a partially quiescent lesion.

Results in the Treatment of Hip Disease

Dr. John Ridlon, Chicago: The mechanical treatment of hip disease aims to do for longer or shorter periods in most cases three things, namely, to immobilize the joint; to remove the weight of the patient from the joint in standing and walking, and to exert traction on the limb. A hip may be immobilized by a plaster-of-Paris spica as efficiently and as comfortably as in any way. The patient's weight can be removed from the joint by putting him in bed, this more efficiently than in any other way. Traction can be exerted by the use of weight and pulley, either with adhesive plasters applied to the limb after the manner of Buck or of Taylor. Some cases attain very good results without any treatment whatsoever; some attain very bad results under the most prolonged and best of treatments; but the orthopedic surgeon also knows that by treatment he lessens pain, shortens the duration of the disease, prevents a great deal of the deformity that would otherwise occur, and saves life.

The Feeding of the Sick Infant

Dr. Frank C. Neff, Kansas City, Mo.: One should regard constipation as an evidence usually of an intestinal indigestion. The constipated new-born baby fed entirely on the breast is with difficulty relieved through the diet. Correction of the mother's diet, digestion and mode of living may be tried, but often has little effect on the child. I have never attempted to administer fruit juices to infants less than 3 months old, but older infants will often tolerate from a teaspoonful to a tablespoonful of orange, grape, pineapple or prune juice with good results. Supplemental feedings of cow's milk with the addition of a malted gruel, such as the so-called malt soup, show a beneficial effect on the gray, dry, soapy stools. The effect of malt sugar is laxative, and of more benefit than any of the laxative drugs. Following a disturbance in balance which is not corrected, there is a decided intestinal disturbance with numerous watery, mucous stools, vomiting, and an elevated temperature. Fats, sugars and flour must here be reduced, and in severe cases also the whey contents of the food. Breast milk is preferable to any artificial feeding. Next comes Finkelstein's *Eiweissmilch*, and, finally, skim or buttermilk in case the other foods are not obtainable. These should be given in small quantities at first.

The feeding of infants suffering from the systemic poisoning resulting from improperly digested and assimilated food and also from infections must provide for elimination through the kidneys and stools.

The feeding of infants with pylorospasm has as yet shown little advance. Lapage advises regulating the feeding, using easily digested food that leaves no residue and has the greatest chance of passing the pylorus. He states that it is advisable to give small amounts, even as little as a teaspoonful, frequently until the child improves and vomiting ceases. Sometimes a change of food alone will lead to temporary improvement. Feeding through a tube without much dilution of the food is advisable, after washing the stomach. Nutritive enemas are of doubtful value.

Pyloric Stenosis in Infancy; an Analysis of Twenty Cases

Dr. H. M. Richter, Chicago: Of the twenty cases, eighteen were of the type described as hypertrophic pyloric stenosis; two were of the type known as spasmodic. In all of the eighteen a definite, firm, olive-shaped tumor was demonstrated at operation; in seventeen of the eighteen it was palpated and recognized through the abdominal wall before the operation. In the one case in which it was not palpable before operation, the clinical findings were so clear that the diagnosis was made without reserve. The tumor consisted of a firm, olive-shaped body, roughly from ½ to ¾ inch in length. It was covered by smooth, glistening peritoneum that had the appearance of being stretched over the mass. There was no external evidence of inflammatory reaction; no attempt at fixation. The mass was freely movable, and this mobility was recognized clinically and is, in fact, probably the cause of the frequency with which clinicians have failed to demonstrate it. The tumor had the firmness of cartilage; it was not soft or pliable in any case; there was no case in which its consistency made the finding questionable; no case in which a gradation could be made out between the tumor mass and the adjacent stomach and duodenum; it was sharply defined. In two cases in which a pyloroplasty was done, and in one case that came to necropsy, a section of the pylorus showed the mucosa to be relatively redundant, so that it bulged out of the incision when relieved of the compression by the tumor. The histologic picture was that of a simple hyperplasia of the circular muscle fibers, with no change in any other structure of the pylorus.

The stomach, when it had not been emptied before opening the abdomen, was always found distended to a marked degree of tension; the duodenum was always empty and collapsed. It was perfectly evident that the tumor formed a complete obstruction of the canal. In none of the eighteen cases was there any congenital malformation, though in one a particularly short mesocolon made it impossible to do a retrocolic gastrojejunostomy.

I wish to emphasize, first, that the mortality has been reduced below that claimed by any method of non-surgical treatment, and second, and of equal importance, that the ultimate condition of the patient is that of a normal individual.

Some Points in the Treatment of Acute Ileocolitis

Dr. J. Ross Snyder, Birmingham, Ala.: The first thing I insist on is that to be rational the treatment must be individual. There are, however, certain principles of treatment applicable to all cases. With the onset of the disease, it is imperative that the intestinal tract be cleaned out. My personal preferences for this purpose are castor oil by mouth and normal saline solution for irrigation of the bowels. If there is troublesome or persistent vomiting, the stomach should be washed; the washing to be followed by the administration of broken doses of calomel until ½ to 1 grain is given; and still later followed by castor oil. Although the initial purgation and irrigation are essential, I wish to protest against the practice of giving a daily dose of oil and of continuing frequent irrigations. This is not only useless but absolutely contra-indicated in that it destroys all possibility of rest to the inflamed and ulcerated bowel. If toxemia of grave nature accompanies the onset, a hypodermoclysis of salt solution should be given without delay. Given early in the attack, salt solution is often an excellent and sometimes necessary measure, but I am convinced that after the heart has been weakened by the ravages of this disease, the subcutaneous injection of salt solution is not only futile but it is capable of producing disastrous results by overcrowding the heart.

By stopping all food, by clearing out the intestinal tract and, if necessary, by the use of salt solution subcutaneously, the toxemia in the majority of colitis cases promptly subsides and the disease becomes a purely local one, demanding for restoration to normal nothing so much as rest.

If peristalsis continues irritable and excited, it is my practice to use opium more and more freely. Without its use in acute colitis, the disease is often unnecessarily prolonged and its dangers are frequently augmented. Children suffering from colitis bear opiates a great deal better than they do the wear and tear and the strain accompanying the irritable peristalsis. Once the intestinal tract has been relieved of toxic decomposing, and irritating food residue, opiates should be called into quick service and they should be given in amounts sufficient for the purpose intended. Rest is not only to be assured by withholding further purgation, by withholding food, and by the use of opiates, but the environments of the child should be made peaceful and quiet. The child should be kept in bed in the recumbent position.

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

(Concluded from page 1745)

Roentgen Therapy of Enlarged Thymus

Dr. Sidney Lange, Cincinnati: Desiring to prove the action of the Roentgen ray on the thymus I roentgenized a series of young rabbits. The result was a slight shrinking to complete fibrosis of the gland. It was possible to produce any desired degree of fibrosis by varying the intensity of the treatment, and the intervals between treatments. Clinically, the treatment of enlarged thymus with the Roentgen ray has produced equally good results. Roentgen therapy is the method of choice in cases of enlarged thymus in children, whether the symptoms be mild or urgent. In five cases treated by me splendid results were obtained. Children whose physical or mental development is retarded should be roentgenoscoped with a view toward determining whether the thymus is enlarged. Roentgen therapy as a precautionary measure or as a preoperative treatment may enable children of the so-called lymphatic type to withstand intercurrent disease, and anesthetics, which might otherwise prove fatal. I believe that the routine preoperative roentgenization should be resorted to in cases of hyperthyroidism, with a view to lessening the operative mortality. No untoward effects have thus far been noted.

Roentgenography of the Ileocecal Valve and Appendix

Dr. James T. Case, Battle Creek, Mich.: In doubtful cases of appendicitis an injection of the colon with bismuth under the guidance of the fluoroscope followed by careful and intelligent palpation of the abdomen may be of service. When the lumen of the appendix is closed, bismuth will fail to enter, but in the large percentage of cases in which the appendix shadow can be studied under the fluorescent screen there are a number of facts capable of demonstration, such as the position of the appendix, its outline, whether it is kinked or obstructed, and even the presence of a pericolitic membrane. I have secured roentgenograms of bismuth in the appendix in over three hundred cases. In one series of 827 examinations the appendix had been removed in 64. Out of the remaining 763 cases the appendix was demonstrated in 273. I do not believe that the ratio of patent appendices can be very much greater than one in three of patients with gastro-intestinal symptoms. I do not assert that every appendix which permits the entry of bismuth is in need of surgical attention. There are many cases in which surgery is distinctly not indicated, for instance, when the contents of the appendix have disappeared by the time the colon is emptied. I examined five patients who were being given bismuth in 15-grain doses in the course of treatment of acute gastric disease. In all five bismuth was found in the appendix, in one of them on the nineteenth day after the last dose of bismuth. In my series of 273 cases in which the appendix was filled with bismuth there was definite tenderness over the appendix in 236 patients. The appendix has been removed in eighty-eight of these, and in all but a few pathologic reports showed disease of the appendix.

DISCUSSION

Dr. W. B. Cannon, Boston: It has been shown conclusively that in cats and dogs there is a thickening of the circular muscles at the terminus of the ileum, a sphincter analogous to the pylorus and cardiac sphincter. Whether there is such a sphincter in man has not been settled. If there is actually a sphincter between the large and small intestines, it is quite conceivable that that sphincter is managed by conditions in the canal itself. The acidity of the stomach content holds the gastric sphincter closed. The acidity in the duodenum closes the pyloric sphincter. It is possible that the state of the food as it comes from the small intestine into the large serves to keep the valve closed. I have never seen food coming from the small intestine into the large forced back by antiperistaltic waves into the small intestine. On the other hand, the introduction of a large enema of starch paste and bismuth quite frequently is pressed back into the small intestine, which may mean that the ileocecal valve is incompetent. It may be competent for material which comes through it normally, but incompetent for material produced in an abnormal manner.

Dr. A. Howard Pirie, Montreal: I had a case in which the bismuth was seen in the appendix six hours after injection, and until twenty-two days afterward. On the forty-third day the patient was operated on for appendicitis. I do

Colorado Medicine, Denver

October, X, No. 10, pp. 281-322

24 Teaching Medicine in Denver. E. Jackson, Denver.
25 Rôle of Catharsis in Operative Conditions. G. H. Curfman, Salida.
26 National Insurance Act of Great Britain. R. Hudston, Denver.
27 Diagnosis of Pancreatic Efficiency. J. L. Mortimer, Denver.
28 Case of Carcinoma of Stomach and Intestine. M. Collins, Denver.

Indiana State Medical Association Journal, Fort Wayne

October, VI, No. 10, pp. 437-484

29 Pitfalls in Progress of Medicine. A. C. Kimberlin, Indianapolis.
30 Acute Postoperative Intestinal Obstructions. V. A. Funk, Vincennes.
31 Tuberculosis of Appendix. B. P. Weaver, Ft. Wayne.

Kansas Medical Society Journal, Kansas City

October, XIII, No. 10, pp. 385-424

32 Feeble-Minded as Revealed by Binet-Simon Measuring Scale for Intelligence. E. E. Liggett, Oswego.
33 Veratrum Viride in Puerperal Eclampsia. F. M. Wiley, Fredonia.
34 Auto-Intoxication. M. S. Thacher, Turon.

Medical Record, New York

November 1, LXXXIV, No. 18, pp. 783-828

35 Diagnosis and Treatment of Knee Lesions in Adult. V. P. Gibney, New York.
36 Rôle of Physical Exercise in Open Air in Prophylaxis of Tuberculosis. J. M. Anders, Philadelphia.
37 Liquor Legislation and Insanity. E. H. Williams, Montclair, N. J.
38 Diet Social Service in Dispensary Work. F. H. Klaer, Philadelphia.
39 *Postoperative Intestinal Stasis and Intra-Abdominal Use of Oil. W. F. Burrows, New York.
40 Detection of Disturbances of Digestive Tract by Examination of Feces. C. C. Sutter, Rochester, N. Y.
41 Experiments on Intradural Anastomosis of Nerves for Cure of Paralysis. W. B. Cadwalader and J. E. Sweet, Philadelphia.
42 *New Method for Determination of Uric Acid in Minimum Quantities of Blood-Serum and Other Fluids of Body. P. Roethlisberger, Geneva, Switzerland.
43 Ambulation and Full Diet as Factors in Diagnosis of Gastroduodenal Ulcer. F. B. Cross, Brooklyn.

39. **Postoperative Intestinal Stasis and Intra-Abdominal Use of Oil.**—Burrows has carried out a series of animal experiments showing the harmlessness and value of neutral mineral oil, used intra-abdominally. He states that in most simple abdominal operations its use is not required since prophylactic care will limit postoperative distress, but in all others the oil is of the greatest value when employed on abdominal pads during operation or sponged gently on intestinal coils previous to closure of the incision, excluding only areas where adhesions are desired and having care that all plastic procedures and intestinal anastomoses are completed before oil is introduced. In cases presenting extensive adhesions or wide-spread peritonitis, large amounts of oil (up to 6 or 8 ounces) are required to prevent recurrence or formation of adhesions, to limit the absorption of toxins from the peritoneal cavity, to assist nature in combating infection, and as a prophylaxis against intestinal stagnation, obstruction, spasm, and final paresis. In the case of more than moderate severity, intestinal spasm and stasis, together with abdominal pain, are largely eliminated and convalescence is more comfortable and safe, while the individual in dire straits at the time of surgical intervention has, postoperatively, manifoldly better chances of recovery.

His conclusions, based on the peritoneal reaction to chemical irritation and on the results of using neutral oil intra-abdominally to control infection and effects of traumatism, both mechanical and chemical, as observed in guinea-pigs and dogs, are as follows:

1. Iodin, mercuric chlorid solution, carbolic acid, alcohol, etc., applied to the peritoneum, rapidly spread beyond the area intended, through capillary action and affinity for the tissues, destroy the endothelial cells, cause an excessive exudate and tend to produce permanent adhesions.

2. Olive oil, containing fatty acids, and commercial liquid petrolatum, the impurities in which are acids,, rosins, fats and oils, both animal and vegetable, [illegible] ubstances with a bland oil, produce inflammat[illegible] surfaces, as is shown by the occurrence of a watery hemorrhagic exudate, which differs, however, from that which takes place in the absence of oil, in that agglutination and organization do not follow.

3. Bland, non-irritating oil, represented by a purified liquid petrolatum causes none of the changes occurring in the process of adhesion formation, which are endothelial cell injury, coagulable exudate, agglutination, organization, and finally connective tissue and fibrous scar formation. The oil has no appreciable chemical action on the tissues nor deleterious effect on the animal and is slowly absorbed.

4. Oil, used intra-abdominally in sufficient quantity, prevents, to a great extent, the formation or recurrence of adhesions.

5. Oil fills the lymphatic channels leading from spaces denuded of peritoneum or opened by incision, thus limiting septic absorption, and, through preserving the endothelial cells, prevents extension of destructive processes.

6. Oil is used to advantage, intra-abdominally, in place of salt solution, on abdominal pads, and to protect and lubricate the abdominal contents, thereby eliminating or minimizing postoperative intestinal statsis, vomiting and abdominal pain.

42. **Uric Acid in Blood-Serum.**—The technic of Roethlisberger's method is as follows: A small quantity of blood is drawn from the finger-tip or the lobe of the ear into a special glass tube, from 10 to 15 drops being usually sufficient for from six to nine tests, which are made simultaneously and serve to control one another. The glass tube must be kept in an upright position for several hours, until complete separation of the serum has taken place. If necessary—especially if placed in an even temperature—the blood may be kept from twelve to twenty-four hours. If kept for a longer period of time there will be loss of uric acid by fermentation or putrefaction.

The best environment for the test is a dark room with a red light, though equally good results may be obtained in a room with a subdued light, or one lighted by a small electric bulb placed at a distance of two or three yards. Two, three, or more strips of the reagent paper—a special kind of filtering paper impregnated with nitrate of silver—are placed on a glass slide. The silver paper should not be exposed to the light except during the time necessary for manipulations; in the intervals it must be screened. With a dropper, 15 per cent. solution of carbonate of soda is dropped onto the paper, allowing a certain margin to surround each drop. The drops must be very small and must absorb quickly, leaving a perceptible round spot. After waiting two or three minutes, a quantity of the blood-serum is withdrawn by a dropper from the glass tube containing the blood; it is dropped slowly on to the round spots made by the carbonate on the test papers. In two or three minutes more the strips of paper are lifted from the glass slide and placed to soak in a porcelain or earthenware dish filled with water The nitrate of silver now dissolves, while the carbonate remains insoluble. The basin must be kept covered to protect the strips of paper from the light until the nitrate is totally dissolved, which generally requires at least thirty minutes. They may be left to soak much longer without harm. The strips are now ready for fixation. They should be removed from the basin and placed in a solution of ammonia (one part of pure ammonia to four parts of water), which removes any unreduced carbonate of silver. Five minutes are sufficient for this process. The strips of paper are then placed in clean water screened from the light, to wash them thoroughly and to remove the ammonia and remains of the salts of silver. After remaining for several hours in the water, the strips are dried between blotting or writing paper, care being taken to protect them from the light. The dried strips are then ready to be placed under the scale; a color scale is necessary for the determination. By comparing the color and the intensity, the degrees of reaction and the proportion of uric acid contained in the blood can be determined. Only spots with distinct outlines are to be considered.

Missouri State Medical Association Journal, St. Louis

October, X, No. 4, pp. 121-154

44 Epidemic Puerperal Eclampsia? E. H. Miller, Liberty.
45 Alimentary Intoxication and Enteric Infection in Infancy. J. M. Brady, St. Louis.
46 Pathology and Course of Specific Urethritis in Male and their Bearing on Treatment. H. M. Young, St. Louis.
47 Diagnosis and Treatment of Diseases of Sigmoid Flexure of Colon. H. W. Soper, St. Louis.
48 Chronic Infectious Endocarditis, with Infarct of Lung, Spleen and Kidney. W. G. Parker, St. Louis.
49 *One Hundred Blood-Studies in Constipation. G. H. Hoxie, Kansas City.
50 Treatment of Diabetes Mellitus. E. B. Knerr, Kansas City.
51 Bacterin Treatment of Pustular Acne and Furunculosis. O. W. H. Mitchell, Columbia.

49. **Blood Studies in Constipation.**—Hoxie claims that intestinal stasis affects the blood-picture, producing a picture characterized by changed color reaction and an increase in the number of immature cell forms. One hundred cases reported on by him fall into three general groups: (1) those in which the lesion is in the upper bowel or stomach; (2) those showing colonic stasis, and (3) those in which the stasis has produced systemic effects. The tendency is toward a high total count. The percentage of the mononuclears is increased. Quite generally the granular cells stain heavily with the blue. The second group is characterized by a total count toward the upper limit of the normal. The color reaction differs quite distinctly from that of group one, for the granular cells are stained both by the red and the blue, thus giving a dirty mauve nuance. As soon as the stasis produces an irritation of the hematopoietic organs ("auto-intoxication"), the leukocyte count goes above the 10,000 mark and the number of immature forms rapidly increases (Arneth's "shift to the left"). It would seem as if the lymphadenoid tissue were inhibited so that the fully developed small lymphocytes were not being produced in sufficient numbers, nor in as relatively great numbers as the ripe granular cells.

New Mexico Medical Journal, Las Cruces

October, XI, No. 1, pp. 1-41

52 Some Race Observations from Epidemiologic Viewpoint, H. D. King, New Orleans.
53 Medical Legislation and Laity. L. S. Peters, Silver City.
54 Social Relations of Physicians and their Families. J. W. Kinsinger, Roswell.

New York Medical Journal

November 1, XCVIII, No. 18, pp. 845-896

55 Common Errors in Diagnosis and Prognosis of Gallstone Disease. B. T. Tilton, New York.
56 *Special Technic in Palpation. L. N. Boston, Philadelphia.
57 *Induced Pneumothorax. H. Schwatt, Edgewater, Colo.
58 Toxicity of Coal Tar Products. G. H. White, Baltimore.
59 Methods of Teaching Sex Hygiene. M. S. Macy, New York.
60 Clinical Study of Leukocytes. G. E. Henson, Jacksonville, Fla.
61 Neosalvarsan and Malaria: Personal Experience. J. A. Cutter, New York.
62 Plea for Oily Injections of Salvarsan H. G. Klotz, New York.
63 Treatment of Chronic Urethritis. S. Steiner, New York.
64 Intravenous Treatment of Rheumatic Fever. P. M. Patterson, New York.

56. **Special Technic in Palpation.**—The correct employment of palpation for the recognition of disease of the lung is believed by Boston to be among the most valuable of physical methods. Whenever it is desirous that the exact extension of a pulmonary lesion be ascertained, palpation serves this purpose equally well, and at times more advantageously than any other physical method. A useful practice is to employ only the index fingers of the two hands. The tip of the index finger receives sensations from an area of the chest approximately the size of a dime. But little additional time is necessary to traverse the entire chest-wall in this manner, and the results obtained are by far more valuable than those gained through the application of two or more fingers of the same hand to the surface of the chest. The index finger is decidedly more sensitive than are the other fingers.

After it has been found that a certain portion of the chest gives increased fremitus, the next step in the examination is to determine the exact extension of the lesion accountable for such fremitus. This Boston does by placing one index finger some distance beyond the area where increased fremitus is produced, and traveling slowly with this finger toward the lesion. Whenever the palpating finger reaches a point where the fremitus is increased, this point should be designated by the pen. This same procedure should be employed to ascertain the boundary of the area of abnormal fremitus on all sides. After the area of increased fremitus has thus been roughly outlined, place one index finger immediately inside the limiting line, and on the area where fremitus is increased, and at the same time place the index finger of the other hand but a short distance beyond the line. In this last position carry the two fingers in a steplike manner along the line designating the approximate limitation of the area of increased fremitus. The finger palpating over the lesion will be found to elicit increased vocal tactile fremitus, while the other index finger palpating immediately beyond the lesion detects a lesser degree and in many instances normal fremitus.

In palpating for the detection of expansible pulsation, the position of the operator's fingers must vary, depending on the location of the aneurysm. Apply the four fingers and the thumb to the pulsating mass in such a way that they more or less completely surround it. The sensation of true expansion with each heart-beat is conveyed to the operator's hand most distinctly. This method has been employed by Boston in distinguishing between aneurysm of the carotid regions and pulsations due to other causes. In studying aneurysm of the abdominal aorta and pulsations conveyed through some solid viscus or growth, this technic has proved of inestimable value.

In palpating for the edge of the liver, a procedure of real worth, Boston claims, the method is as follows: While the patient is standing place the fingers of the palpating hand at approximately the lower border of the liver; and direct the patient to raise the heel of the right foot so that he stands with but a small portion of his weight on the right toe. This position will be found to relax the abdominal wall over the right hemisphere. This method serves of equal value in palpation of the right kidney, and of the appendicular and pelvic regions. The same procedure is equally well adapted for the study of the left abdominal hemisphere.

57. **Induced Pneumothorax.**—Schwatt uses oxygen gas for the first, and frequently for the second injection. Under no circumstances is any gas allowed to flow in before there is a conclusive indication that the point of the needle is in a free pleural space. A distinctly negative reading with both inspiration and expiration, and a greater negative reading with inspiration than with expiration, are practically conclusive evidence that the needle has entered the pleural cavity. As a further indication the patient is instructed to take a moderately deep inspiration and to hold his breath at the end of it. If the manometer then remains stationary at a negative reading, one may be certain that the point of the needle has reached a free pleural space. Should the point of the needle be in the lung tissue, the column will drop from negative to zero while the patient is holding his breath. The insertion of the needle into the lung tissue is in itself devoid of any danger. It is Schwatt's practice to inject the gas in small quantities especially at the first operation. No more than from 50 to 100 c.c. of gas are injected without taking a manometer reading. It is Schwatt's opinion that many unfavorable results, both immediate and remote, are produced by injecting large amounts of gas. Except in cases in which it is sought to induce a pneumothorax for the purpose of stopping hemorrhage, nothing can be gained, and great damage may be done by injecting large amounts of gas. It is equally wrong to inject the gas under a pressure greater than that furnished by the injection bottles.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

October, XVII, No. 4, pp. 173-211

65 Salts of Emetine as Specific in Amebic Dysentery. W. Allen, Charlotte, N. C.
66 Relation of Serology and Cytology and Chemistry of Cerebrospinal Fluid to Mental Diseases. M. J. Karpas, New York.
67 Seasonal Variation of Disease. H. D. King, New Orleans.
68 Case of Pneumothorax. O. C. Brunk, Richmond, Va.
69 Urethral Calculi—Simple Method of Removal. L. T Price, Richmond. Va.
70 Case of Meningitis of Otitic Origin, Illustrating Insidious Latent Stage of Streptococcus Capsulatus Infection. S C. Bowen, Richmond, Va.

Ophthalmology, Seattle, Wash.

October, X, No. 1, pp. 1-201

71 Mirror Sight for Fire Arms. F. Schanz, Dresden, Germany.
72 Myopia-Etiology and Optical Management. C. W. Le Fever, Philadelphia.
73 Case of Infection Following Extraction of Cataract. H. W. Woodruff, Joliet, Ill.
74 Case of Dacryocystitis Presenting Several Complications, Including Orbital Abscess and Optic Neuritis. A C Snell, Rochester, N. Y.

75 Paralysis of Ocular Muscles. G. A. Moleen, Denver.
76 Glaucomatous Vertigo. L. Dor, Lyons, France.
77 Sudden Total Blindness Following Iodin or Fracture. E. J. Bernstein, Kalamazoo, Mich.
78 Some Unusual Varieties of Rupture of Sclera. E. Fuchs, Vienna, Austria.
79 Specialist of Yesterday, To-Day and To-Morrow. H. Weir, Portland, Ore.
80 Chorioiditis, Etiology and Treatment. A. E. Davis, New York.
81 Probable Deleterious Effect of Salvarsan on Eye: Review of Literature and Report of Case. E. E. Maxey, Boise, Ida.
82 Visual Conservation in Young Children. F. A. Fenton, Portland, Ore.
83 Spontaneous Dislocation of Lenses, with Report of Case Exhibiting Pathologic Anatomy of Ligament of Zinn. H. V. Würdemann, Seattle, Wash.
84 Keratitis Neuroparalytica with Report of Case. G. E. Bruere, Portland, Ore.
85 Management of Psychoneurotic Eye Cases. F. B. Eaton, Portland, Ore.

Southern Medical Journal, Nashville, Tenn.

October 1, VI, No. 10, pp. 631-704

86 *Hydrothorax in Relation to Cardiorenal Lesions. F. A. Jones, Memphis, Tenn.
87 *Epitheliolysis against Carcinoma. A. E. Thayer, Mobile, Ala.
88 *Bacillary Dysentery in Infants. W. W. Harper, Selma, Ala.
89 Non-Medical Treatment of Chronic Constipation. F. W. Wilkerson, Montgomery, Ala.
90 Prognosis in Morphinism and Few Hints on Proper Home Care of These Patients by General Practitioner. C. B. Pearson, Baltimore.
91 Common Colon Bacillus. C. Thorington, Montgomery, Ala.
92 Home Treatment and Necessity for Early Diagnosis of Consumption. E. B. Hardin, Florence, Ala.
93 Ainhum as Seen on Canal Zone, with Report of Interesting Cases Occurring in One Family. H. Weinstein, New York.
94 Acute Pancreatitis. T. B. Hubbard, Montgomery, Ala.
95 Missed Abortion and Missed Labor, with Report of Cases of Missed Abortion. M. A. Shlenker, New Orleans.
96 Etiology and Pathology of Neoplasms of Breast. J. J. Cullings, Memphis, Tenn.
97 Tumors of Breast—Symptoms and Treatment. W. T. Black, Memphis, Tenn.
98 Traumatic Rupture of Kidney; Report of Three Cases: Two Nephrectomies. F. K. Boland, Atlanta, Ga.
99 Two Cases of Cerebral Injury without Fracture. O. S. McCown, Memphis, Tenn.
100 Acute Eczema Early in Course of Syphilis. H. H. Hazen, Washington, D. C.
101 Mastoiditis. S. Kirkpatrick, Selma, Ala.
102 Lingual Tonsil. L. DePoorter, New Orleans.
103 Albuminuric Retinitis. C. M. Sandusky, Jacksonville, Fla.
104 *Medical Profession and Medical Education. W. F. R. Phillips, Mobile, Ala.
105 Regulation and Sanitation of Prisons. W. H Oates, Montgomery, Ala.

86. Abstracted in The Journal, Dec. 7, p. 2090.

87. **Epitheliolysis Against Carcinoma.**—The cells of carcinoma have a strong tendency to degenerate soon after formation. They are, therefore. on a plane of less resistance than those of the normal type of epithelia, whether merely investing or more specialized; could this natural tendency to degeneration be hastened and intensified without injury to normal epithelia, or would it be necessary to make the lytic power strong enough to affect them also in order to entirely destroy the neoplastic cells, and how would this be recognized and controlled clinically? These are Thayer's premises. He found that repeated intraperitoneal injections of washed sterile epithelia, injected at five-day intervals, caused general destruction of practically all the epithelia of the recipient animal The organs, sectioned in paraffin, showed degenerative changes in proportion to the frequency and amount of epithelia injected, and clinically the animals developed diarrhea and other symptoms corresponding to such lesions. So many experiments of this kind were performed and the result was so constant that the first part of the working hypothesis was regarded as established.

The next step was to try a similar procedure in a case of inoperable carcinoma. For this purpose several autolysates of epithelia were prepared, the washed material sterilized over chloroform and kept in the incubator at 37 C. for a couple of months, then filtered and tested for the presence of germs and ferments. When ready for use it has the following characters: It is of light straw color, of a specific gravity of 1.008-1.010, faintly alkaline; either dissolves out a trace of fat but causes no precipitate; nitric, picric and trichloroacetic acids give a fine precipitate [illegible] do [illegible]ontains no bile, no proteolytic ferments (others not tested) represen[illegible]does contain 1/10 per cent. of urea and 0.19 per liter uric acid; before use it is tested by both aerobic and anerobic cultures and found to be sterile.

The clinical experiment was performed in a case of inoperable carcinoma of the cervix. July 25, 2 c.c. of the filtered lysate, diluted with 10 c.c. sterile physiologic salt solution, were injected under the skin of the right side, between the ribs and the iliac crest. By the 28th, pain was a little less; this symptom had been continuous and unrelieved by the operation. On this date 5 c.c., well diluted as before, were injected. Since she had had no reaction beyond a half a degree of temperature, it was thought safe to double the dose, the point of injection being the left flank. August 5, 10 c.c. were given, August 8, 10 c.c., and August 16, 12 c.c. The site of injection has at no time shown any redness, induration or tenderness. At the latter date the patient's cachexia had practically disappeared, her vaginal discharge had nearly ceased and had lost the foul odor entirely, the lymph-nodes of the groins were barely palpable, the pain in the abdomen had ceased and but little was left in the right thigh, and in the week of August 2 to 8 she had gained 2½ pounds. The patient's condition, August 20, is still satisfactory.

88 and 104. Abstracted in The Journal, Dec. 3, p. 1389.

Surgery, Gynecology and Obstetrics, Chicago

October, XVII, No. 4, pp. 398-522

106 *Congenital Atresia of Esophagus; Operation Designed for Its Cure. H. M. Richter, Chicago.
107 *Rôle of Glands of Internal Secretion in Genesis of Fibroma Molluscum Gravidarum. S. M. Brickner, New York.
108 Roentgenoscopy of Habitual Constipation. E. H. Skinner, Kansas City.
109 Value of Roentgenoscopy in Study of Chronic Appendicitis and Inflammatory Conditions. Both Congenital and Acquired, about Cecum and Terminal Ileum. A. W. George and I. Gerber, Boston.
110 Pregnancy in Rudimentary Cornu of Uterus Unicornis and Report of Case with Full Term Fetus. E. P. Quain, Bismarck, N. D.
111 Vital Statistics of Prostatectomy. J. B. Squier, New York.
112 *Use of Tuberculin in Treatment of Surgical Tuberculosis, with Clinical Reports and Late Results. C. G. Swenson, Chicago.
113 Histogenesis of Cancer of Breast and Its Clinical Significance. W. C. MacCarty, Rochester, Minn.
114 *Simple Method of Excluding Pylorus. W. Bartlett, St. Louis.
115 Infantile Type of Uterus with Dysmenorrhea. T. J. Watkins, Chicago.
116 Malignant Hypernephroma of Kidney, Its Clinical Course and Diagnosis, with Description of Author's Method of Radical Operative Cure. A. A. Berg, New York.
117 Blood-Pressure during Pregnancy. F. W. Lynch, Chicago.
118 Pathogenesis of Congenital Cystic Disease of Parenchymatous Organs. A. E. Hertzler, Kansas City.
119 Cancer Situation. W. P. Carr, Washington, D. C.
120 Intestinal Anastomosis; with Report of Aseptic Basting Stitch Method. H. H. Kerr, Washington, D. C.
121 Harelip, with Illustrative Cases. R. C. Turck, Jacksonville, Fla.
122 *Modern Extraperitoneal Cesarean Section with Description of Best Technic for Its Performance. B. C. Hirst, Philadelphia.
123 Technic of Insertion of Intratracheal Insufflation Tubes. C. Jackson, Pittsburgh.
124 Ill Effects from Ileosigmoidostomy. A. Werelius, Chicago.
125 *Two Cases of Obstruction of Intestine from Unusual Cases. C. U. Collins, Peoria, Ill.
126 Modified "Figure-of-Eight" Suture. T. J. Watkins, Chicago.

106. **Congenital Atresia of Esophagus.**—Richter's plan of operation consists of closure of gullet at tracheal junction by transthoracic route and gastrostomy.

107. **Fibroma Molluscum Gravidarum.**—Brickner adds an observation, which, as far as an exhaustive study of the literature is concerned, is unique. The condition is a longitudinal pigmentation of the nail of the index finger of the right hand and of the middle finger of the left hand. The patient was a primigravida. During the later months of her pregnancy she noticed this discoloration of the nails. It was at first of a light brown but became deeper in color as the pregnancy advanced. There was no unusual pigmentation of any of the rest of the body, the linea alba and the areolae being no more deeply pigmented than usual. Her child is now 15 months of age. The color has gradually disappeared from the nails, but the pigment is still present. It is three-sixteenths of an inch in width and is at present of a light yellowish brown color.

112. Tuberculin in Surgical Tuberculosis.—In Swenson's experience, tuberculous gland infections that have not entered the stage of caseous degeneration have yielded to tuberculin treatment. He says that almost all local tuberculosis may be cured under persistent, skilful, surgical treatment, assisted by tuberculin injections properly given. Tuberculin injections may be safely given every tenth or twelfth day without opsonic work; of course, it is preferred that one be guided by occasional blood-tests. All tuberculin injections should be given by a reliable, clean person, and the best place for the injections is on the anterior part of the chest. Duration of tuberculin treatment; one half to two years. All hygienic treatment, such as fresh air, good food, and attention to digestive organs, is of vital importance. For tuberculous sinuses extending into the urinary bladder the bismuth paste injections are usually contra-indicated.

114. Simple Method of Excluding Pylorus.—A metal spatula is introduced through a slit in the gastrocolic ligament to protect the structures behind the stomach, then a metal skewer is thrust directly through both walls of the stomach into the lesser peritoneal cavity and out again so as to encompass about one-half the distance between the two curvatures. A clamp is placed behind the skewer and several mattress sutures introduced between the skewer and clamp; these embrace the whole thickness of both walls of the stomach. The skewer is cut out with a sharp knife and the mattress sutures tied before the clamp is removed. A hemostatic running stitch of silk or linen unites the four exposed cut edges (it may be inserted before the clamp is removed). The ridge of tissue formed by the mattress sutures is inverted with a continuous Lembert row. None of the ten dogs on which Bartlett used this method died from the effects of the operation. The excluded portion was pale and strikingly atrophic at autopsy in each case, while roentgenoscopy showed the obstruction to be complete and the gastro-enterostomy patent in the three which were examined months after operation.

122. Modern Extraperitoneal Cesarean Section. — Hirst's experience with extraperitoneal cesarean section comprises nine operations in the last eleven months without maternal or fetal mortality. Two of the patients were presumably infected beforehand and one had placenta praevia. The first three operations were done by Frank and Bumm's technic; the next three by Sellheim's; the last three by Veit and Fromme technic with a slight original modification which Hirst believes decidedly improves the operation. It consists in suturing the peritoneal flaps before opening the uterus. The lower abdomen is incised down to the symphysis pubis; the perietal peritoneum is opened in the usual manner; the lower visceral peritoneum on the lower uterine segment is opened in the same way. The two peritoneal flaps are sewed together on each side, thus closing the peritoneal cavity; the lower uterine segment is incised from above downward, as low as necessary to deliver the child, the bladder being protected by a retractor over the symphysis; a forceps is applied to the child's head; the placenta and membranes are removed; the uterine wound is united by a two-tier catgut stitch; the double peritoneal flaps are brought together in the middle line over the uterine wound by two or three interrupted stitches, and the abdominal wound is closed in the usual way.

125. Obstruction of the Intestine.—One case cited by Collins was due to strangulation caused by a fibrous band across a hernial sac; the other from intussusception caused by a lipoma of the cecum.

Tennessee State Medical Association Journal, Nashville

October, VI, No. 6, pp. 209-252

127 Clinical Data on Renal Calculus. W. F. Braasch, Rochester, Minn.
128 *Three Cases of Prolonged General Suppurative Peritonitis Pointing at Umbilicus, Incision and Cure. W. D. Haggard, Nashville.
129 *Submucous Resection of Nasal Septum. H. Wood, Nashville.
130 *Intracranial Hemorrhage. R. Mann, Memphis.
131 *Paroxysmal Tachycardia. F. J. Runyon, Clarksville.

128 to 131. Abstracted in THE JOURNAL, April 19, p. 1248.

Texas State Journal of Medicine, Fort Worth

October, IX, No. 6, pp. 175-204

132 Safe and Convenient Method of Giving Uniform Vapor of Anesthetic. W. S. Carter, Galveston.
133 Practical Application of Intratracheal Anesthesia. A. O. Singleton, Galveston.
134 Present Status of Serum Therapy. S. D. Swope, Deming, N. M.
135 Cell Inclusion Bodies Found in Circulating Blood and Lesions of Syphilis. J. E. Robinson, Temple.
136 Laboratory Diagnosis of Syphilis. M. W. Colgin, Waco.
137 Relation of General Practitioner to Public Health. J. E. Dildy, Lampasas.
138 Sporotrichosis. E. F. Cooke, Houston.
139 Research Work on Pellagra, with Isolation of Possible Causative Factor. D. Meredith, Wichita Falls.
140 Laboratory and Surgeon. G. T. Thomas, Amarillo.

Vermont Medical Monthly, Burlington

October, XIX, No. 10, pp. 235-260

141 One Hundred Years of Medicine in Vermont. B. H. Stone, Burlington.
142 Acute Inflammation of Middle Ear. L. A. Newcomb, Montpelier.
143 Appendicitis. G. S. Foster, Manchester, N. H.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 18, II, No. 2755, pp. 973-1048

1 Investigation of Higher Nervous Functions. I. Pawlow.
2 "Struma" an Important Factor in Disease of Eyes. T H. Butler.
3 *Rigidity of Calcified Arteries. A. H. MacCordick.
4 Second Case of Double Loop Hernia. J. A. C. Macewen.
5 Certain Non-Official Fats as Ointment Bases. R. B. Wild.
6 Best Methods of Dealing with Malpositions of Uterus. M. Scharlieb, H. Schlimpert and H. Corby.
7 Affections of Urinary Tract Complicating Pregnancy. H. Croom.
8 Plea for Early Operation in Cases of Uterine Fibroids. A. E. Giles.
9 General Peritonitis due to Vermiform Appendix and Complicating Pregnancy. T. H. Ionides.
10 Clinical Travel. R. L. Dickinson.
11 Significance of Wassermann Reaction in Gynecologic Diagnosis, with Special Reference to Uterine Hemorrhage. A. L. McIlroy, H. F. Watson and J. H. McIlroy.
12 Abderhalden's Serum Reaction of Pregnancy. H. Schlimpert.
13 Treatment of Cutaneous Tuberculosis by Means of Copper. G. N. Meachen.
14 *Circulatory Disorders in Relation to Alopecia Areata and Other Forms of Baldness. D. Walsh.
15 Treatment of Skin Affections by Solid Carbon Dioxid. J. L. Bunch.
16 Unusual Case of Acne Necrotica. F. Gardiner.
17 Ointments. H. Davis.
18 Treatment of Chronic Ulcer of Leg. A. W. Williams.
19 Use, Action and Dosage of Roentgen Rays in Psoriasis and Other Skin Diseases. S. E. Dore.
20 Treatment of Common Skin Diseases at Harrogate Spa. L. J. Hobson.

3. Rigidity of Calcified Arteries.—It is held by MacCordick that during life the calcareous matter in the arterial wall is not present in the form of rigid plates. It is there, but in the state that may be compared with unset mortar. It is generally accepted by chemists that the process of setting of mortar is one of conversion of calcium hydroxid into calcium carbonate by the absorption of carbon dioxid from the air. Kept under an alkaline solution, or kept in bulk away from the air that contains carbon dioxid, mortar remains unset. A mixture of calcium carbonate and calcium phosphate remains soft so long as it is in an alkaline medium; placed in an acid solution it sets. Also the more strongly acid the medium the faster it sets. The reaction of the tissues and body fluids during life is alkaline, but becomes acid shortly after death. It is deserving of note particularly, in the second place, in connection with arterial calcification, that the gas which after death replaces the blood within the arteries is largely composed of carbon dioxid. Without doubt when there are large areas of necrosis appearing in the tissues, there the production of acid is the cause of the setting of calcareous matter. For instance, it is the experience of the gynecologist that a calcified fibroid of the uterus may be found of stony hardness even while in the body; so also MacCordick's experience is that in a case of senile gangrene the arteries of the necrosed or gangrenous area are of stony hardness, whereas the same arteries higher in their course, where the circulation is still maintained, are soft and pliable and can be ligatured with ease. In short, he says, in arteries provided with an adequate circulation the calcareous matter, whether it be in the intima or the media, remains unset. It is easy, then, to understand why, after handling pipe-stem radials, there is no thrombosis and gangrene, easy to understand why rigid and tortuous splenic and other mesenteric arteries in the aged arteriosclerotic do not undergo traumatic rupture. During life they are not rigid. It is easy also to understand the occurrence of extensive so-called atheromatous ulceration of the aorta without thrombosis, commonly occurring during life. Those ulcers, in short, and the saucer-like plaques with surrounding rupture of the endothelium are postmortem productions. The calcified areas become in the intima set and rigid before the muscular contraction of the aorta gives way and the tube undergoes dilatation. The result is that a tension on the endothelium at the edges of the plaque induces rupture of this lining.

14. **Circulatory Disorders and Alopecia Areata.**—Thirty-six cases were examined by Walsh. Of these 23 were in males and 13 in females; 14 were under 20 years of age, and 6 were 50 or over. Of the 36 patients no less than 24 had valvular murmurs and other evidence of cardiac disease, while 3 others showed general arteriosclerosis (one advanced atheroma). Of the remaining 7, one had exophthalmic goiter; one chorea and irregular heart action; one irregular action from tea and another from tobacco poisoning; one had a feeble circulation; while in three only could no marked abnormal circulatory condition be detected. Of the 24 valvular conditions, 18 showed mitral regurgitation, and 2 of them aortic mischief as well; 5 were direct aortic, 2 of them direct and regurgitant; and one showed multiple murmurs in a terminal stage of cardiac disease. Walsh says that it may be objected that in cases of alopecia following mental shock the cause is evidently neurotrophic, and that cardiovascular disturbance does not enter into the question. The answer is that shock does not produce alopecia areata in all individuals but only in those who have a certain predisposition, which may be either cardiovascular, or due to a temperament in which the heart is peculiarly liable to be disturbed. Some years ago Walsh described a type of individuals characterized by a congenital high forehead and abnormal thyroid gland, in whom shock was apt to be followed by a curious symptom-complex in which were to be found tremors, nervousness, depression, tachycardia, palpitation, headaches, exophthalmos, diffuse and patchy baldness, and so on. There was a special tendency to exophthalmic goiter and myxedema, the two being sometimes associated. This temperament, with its consequences, was often met with among poorly-fed children in an outpatient department. So far as myxedema is concerned, Walsh cannot recall a single case in which the patient had not a congenital high forehead. Where shock is followed by alopecia areata the same condition, in his experience, is almost always present. The associated instability of the heart condition in such cases is shown by the quick and variable pulse, the palpitation, and sometimes by the physical signs of a dilated heart. Walsh's main conclusions are as follows: The abnormal loss of hair, whether acute or chronic, diffuse or patchy, is in the majority of cases associated with some serious cardiovascular defect, which constitutes an essential predisposing cause. Given this predisposing cause the exciting cause may be one of various agencies, acting either directly or indirectly. Alopecia areata is simply a localized form of diffuse baldness, and both are probably due in most cases to exciting traumatism and predisposing cardiovascular defect. The predisposing cardiovascular condition may be (a) cardiac valvular. myocardial, or functional; (b) vascular, as arteriosclerosis; (c) neurovascular, as exophthalmic goiter or Raynaud's disease. In some cases the skin sign, in the form of alopecia or eruption, may register a failure of compensation. For instance, when an attack of influenza breaks down the compensation of a preexisting valvular lesion, an acute shedding of hair follows. From a pathologic point of view the predisposing part played in these cardiovascular cases depends on a disturbed balance of the surface circulation and acts in a twofold manner: (1) by diminishing the natural local defenses of the skin circulation against the invasion of bacteria from without; (2) by predisposing to the formation of clots, with subsequent damage to nutrition and shrinkage of capillaries (fibrosis); (3) by inducing lymph stasis.

Dublin Journal of Medical Science

October, III, No. 502, pp. 241-312

21 Stomach Cases. T. G. Moorhead.
22 Case of Puncture Wound over Right Clavicle, Causing Loss of Pulsation in Arteries of Arm. H. Stokes.
23 Every-Day Application of Certain Preparations of Spleen, Pancreas, etc. G. W. Carnrick.

Edinburgh Medical Journal

October, XI, No. 4, pp. 289-384

24 Duration of Interval between Insemination and Parturition in Certain Mammals as Studied in Biometric Curves, with Special Reference to Calculation of Onset of Labor in Human Pregnancy. D. B. Hart.
25 Postgraduate Instruction of Tuberculosis Medical Officers. R. W. Philip.
26 Some Cases of Eclampsia Treated by Veratrone. F. W. N. Haultain.
27 Can Urinary Bladder Empty Itself? A. G. Miller.
28 Work of Clinical Medicine Research Laboratory, Royal Infirmary, Edinburgh. H. Rainy.
29 Incorporation of Surgeons of Edinburgh: Their Early Association with Royal Infirmary. C. H. Creswell.

Glasgow Medical Journal

October, LXXX, No. 4, pp. 241-319

30 Tuberculosis: Renal and Vesical Cystoscopic Appearances in Early Stages Demonstrated by Projectoscope. D. Newman.
31 Obstruction of Pulmonary Artery due to Carcinoma. A. W. Harrington.
32 Serotherapy of Cerebrospinal Meningitis. W. C. Gunn.
33 A Glasgow Physician. G. McIntyre.

Lancet, London

October 18, No. 2, pp. 1103-1166

34 Some Applications of Antenatal Eugenics in Heredity. D. B. Hart.
35 Cerebrospinal Fluid in Health and Disease. D. Ferrier.
36 *Relief of Pain of Laryngeal Tuberculosis. E. D. Davis.
37 *Hereditary Optic Neuritis: Eleven Cases in Three Generations. A. S. Worton.
38 Case of Pellagra. E. M. Johnstone.
39 Two Cases of Cervical Rib with Vascular Symptoms. E. D. Telford.
40 *Treatment of Ankylostomiasis. R. D. Keith.
41 Treatment of Infections by Means of Fixation Abscesses. deLostalot.
42 Hemiplegia Following Syphilis. M. Mackinnon.

36. **Relief of Pain of Laryngeal Tuberculosis.**—In twelve selected cases of laryngeal tuberculosis, Davis injected a solution of 2 grains of eucain in 1 ounce of 80 per cent. alcohol to relieve the dysphagia. The method of injection adopted is briefly as follows: The patient is in the prone position with the head and neck slightly extended and the chin turned away from the point of injection. To avoid sepsis the skin in the region of the nerve is painted with iodin. The larynx is pressed out of the midline by the thumb and made to project on the side about to be injected. The nerve is marked out by the nail of the index finger, which is placed between the hyoid bone and the thyroid cartilage and immediately above the superior thyroid tubercle where a tender spot is found. The blunt needle of Schlosser's syringe is now pushed in with a jerk at right angles to the surface and at the middle of the finger-nail to a depth of 1½ cm., i. e., to the mark on the needle. The needle is carefully moved so as to seek the spot at which the patient complains of pain in the ear. A few drops of the solution of alcohol are injected, and if there is a violent fit of coughing it indicates that the needle has possibly entered the pharynx and is too deep, but this very rarely happens. Finally, the slightly warmed alcoholic solution is injected until the pain in the ear has ceased. About 1 to 2 c.c. is generally sufficient. Of the twelve cases mentioned not one showed any signs of hemorrhage, injury to the surrounding structures, or other disturbing results—in fact, the proceeding is not much more difficult than the usual hypodermic injection. With the laryngoscope the side of the larynx injected was found to be slightly paler, and appeared to be less sensitive when touched with a laryngeal probe. This local anesthesia is probably the cause of the immediate

relief experienced in most cases. In two cases both nerves were injected at the same sitting without any untoward symptoms and without the regurgitation of fluid into the larynx during swallowing, but as a general rule, it is wiser to allow a few days to elapse before the injection of the second nerve. Of the twelve cases two were unsuccessful, owing to ulceration of the pharynx in one and extensive disease in the other. One patient obtained complete freedom of pain for one month and put on 3½ pounds in weight in a week. This patient died a few months later from diffuse pulmonary tuberculosis, and microscopic sections were made of the internal laryngeal nerves and compared with a section of the same nerves of a healthy subject who had been killed by an accident. The nerve which had been injected twice showed increased fibrous tissue and numerous spaces within the bundles of the nerve fibers.

37. **Hereditary Optic Neuritis.**—The eleven cases cited by Worton occurred in one family in three generations. All the patients were males. The age incidence varied from 9 to 32 years. Of the four cases personally examined two had regained practically normal vision but leaving some deficiency in the light sense, especially in one case; one patient is still under observation; and in one vision is reduced to hand movements close to the eyes. Of the remaining six living patients nothing is known of the present visual condition of two, one is stated to be blind, and the sight of one bad, while improvement has occurred in two cases. It is noteworthy that in all the cases in which visual power was completely regained or had partially recovered, the age incidence of the disease was below 20 years. Worton suggests that this would seem to have a bearing on prognosis.

40. **Treatment of Ankylostomiasis.**—A point of great importance in the successful treatment of ankylostomiasis in Keith's opinion, is the percentage of hemoglobin in the blood. If the percentage of hemoglobin is in the neighborhood of 60, he says it may be reckoned that with suitable treatment the ova will disappear in the course of a few days. With a percentage of between 45 and 55, treatment will be more difficult. Anything below 40 per cent. will indicate that great patience will have to be exercised before recovery can take place; it will not be a question of weeks but of months, and this is certainly so when the percentage of hemoglobin is as low as 10 to 20. The general condition improves with rest and diet. As a rule, the edema soon disappears and the patient feels better, but the ova, though they decrease in number rather quickly at first and then more gradually, do not disappear entirely for months, while the hemoglobin index remains persistently about its original level. From recent results Keith has come to the conclusion that betanaphthol in 30-grain doses, the first thing every morning, is likely to prove more effectual than eucalyptus or thymol. The necessity for starving patients while the treatment is being carried out is by no means evident; indeed, in bad cases it may even be harmful. More especially is it unnecessary if the drug is given the first thing in the morning. There will not be much food found in the upper part of the small intestine five or six hours after an ordinary meal, so that if the drug be given the first thing in the morning there is no necessity for starvation. Energetic treatment is needed, and Keith has never seen any ill-effects follow from such measures.

Practitioner, London

October, XCI, No. 4, pp. 445-588

43 *Researches on Pathogenesis of Cancer. De Keating-Hart.
44 *Abnormal Sensations in Pharynx. T. B. Layton.
45 Diagnosis and Treatment of Various Conditions Met with in Nasopharynx. N. Patterson.
46 Functional Tests of Labyrinth and Their Value in Diagnosis. A. Dighton.
47 *Nasal Catarrh—Acute and Chronic. W. Wilson.
48 Recent Work in Ophthalmology. L. V. Cargill.
49 Diagnosis and Treatment of Some Common Eye Diseases. E. A. Dorrell.
50 Recent Work in Children's Diseases. H. Thursfield.
51 Premature Loss of Hair and Hygiene of Scalp. D. Freshwater.
52 Some Common Types of Alopecia. D. J. Guthrie.
53 Some Conditions Which Mimic Acute Abdomen. E. C. Bevers.
54 Chronic Appendicitis. H. Stedman.
55 Anesthesia. G. A. H. Barton.
56 New Ovum and Its Miracidium. J. A. Kay.

43. **Pathogenesis of Cancer.**—The parasitic theory of cancer, De Keating-Hart says, is given up, not as being impossible, but because, according to the present state of knowledge, it is unlikely and irrational; in microbial diseases, the injured cell leaves the virus intact, and one would, therefore, have to imagine a parasitism contrary to the histologic laws of higher organisms. The absolute similarity is recognized of the conditions which govern the grafting of normal and cancerous cells, and determine failure or success. It has been shown that ectopy, and the metastatic capability of cancerous cells are the consequences of their acquired properties, and of their cellular construction. The irritative theory is accepted as being the only one which embraces all the known facts in cancerous etiology. The biologic conditions, created by irritation in the cells submitted to it, have been studied. The reproductive power of cancerous cells has been proved, and their nutritive requirements demonstrated. De Keating-Hart believes that cancer is produced by cells overcultivated for a long time in the irritated zones of the organism; they are like hothouse plants, which, as a result of slow and prolonged increase of heat and food, acquire, after a variable period, the hereditary characters of overproduction and overfeeding which distinguish them. Ectopy, the invasion of healthy peripheral tissues, is accounted for by the same intensity of multiplication, which breaks down the normal barriers by mechanical pressure. Metastatic effects are due, at the same time, to the increased vitality of the cells easily carried away in the lymph and blood streams, owing to the want of intercellular cohesion peculiar to cancerous formation.

44. **Abnormal Sensations in Pharynx.**—Abnormal sensations in the pharynx, Layton states, are exactly the same as abnormal sensations in the skin, but are brought more to our notice because we are unconscious of the normal sensations there. They may be due to a foreign body, a small local lesion, or an insignificant local lesion associated with a slight general lowering of the resistance of the body. All may lead on to serious disease, and so are well worth attention. Treatment consists in no panacea, but in a careful search for the primary lesion, and a well-balanced consideration of everything concerning the patient's health.

47. **Nasal Catarrh.**—The treatment Wilson has found most useful in cutting short an attack of acute coryza is the following: 1. A single pill of morphin gr. 1/6 made up with a little capsicum and ol. menth. pip. A small dose of nitroglycerin also is advantageous. 2. In two hours 10 grains of aspirin. 3. A hot bath. The following morning, a purgative dose of magnesium sulphate is given to clear away the intestinal contents held back by the morphin. Neither a nasal douche nor a spray should be employed, but an irritant antiseptic ointment containing menthol and salicylic acid, will best fulfil the purpose. A small portion of such an ointment is inserted well up into each nostril, where, if sniffed back, it gives rise to considerable smarting and secretion; it should be applied frequently despite the pain. It will be succeeded by a period of relief, and then the nose can be sprayed repeatedly with a sedative preparation. Despite the pain caused by the menthol-salicylic preparation, no cocain should be employed at all, as it paralyzes the ciliated epithelium and opens the way for fresh infection.

Presse Médicale, Paris

October 4, XXI, No. 81, pp. 801-816

15 Cultivation of the Syphilis Spirochete. (Etat actuel de la culture du tréponeme pâle.) H. Noguchi (New York).
16 General Paralysis and Syphilis. H. Noguchi.
17 *Morbid Functioning of the Adrenals. (Relations entre les syndromes surrénaux et les troubles des *fonctions* surrénales.) L. Bernard.

October 8, No. 82, pp. 817-824

18 The Interpterygoid Fascia. A. Hovelacque and M. Virenque.

17. **The Adrenal Syndromes.**—Bernard's name is connected with the history of the pathology of the adrenals, and he here compares the histologic findings with the clinical manifestations of excessive or deficient functioning of the adrenals. He calls the syndromes respectively hyperepinephria and hypo-

spinal cord. The young man probably has the same affection although in both the symptoms have been exclusively those of primary spastic spinal paralysis. Eichhorst has previously published a case of multiple sclerosis in a woman and likewise in her son; he thinks this is probably the only case on record in which the same medical man had both mother and child in his charge for multiple cerebrospinal sclerosis and was able to make the post-mortem examination in both. In three other cases of supposed primary spastic spinal paralysis in men microscopic examination of sections of the spinal cord revealed in fact merely the anticipated primary affection of the lateral pyramidal tracts.

61. **Diet and Exercise in Treatment of Weakness of the Muscles.**—Besse refers only to the forms of myasthenia, congenital or acquired, in which the condition has become aggravated by toxic influences either from the results of worry, hurry, unhygienic modes of eating, whims and prejudices in regard to food, abuse of alcohol or tobacco or intestinal auto-intoxication. Persons with this muscular weakness are generally given extra nourishing food which with an unhygienic mode of life only adds to the general auto-intoxication. He gives detailed directions for diet and exercise to influence the condition after the patients have learned to understand their weakness and its causes, and have been trained in rational hygiene and placid living.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXVI, No. 5, pp. 695-859. Last indexed Nov. 1, p. 1670

65 *Parapneumonic Empyemas. D. Gerhardt.
66 *Spontaneous Rupture of the Aorta. A. D. Woloschin.
67 *Functional Importance of the Gall-Bladder. (Experimentelle und anatomische Untersuchungen nach Cholecystektomie.) F. Rost.
68 *Tuberculous Gastric Ulcer. J. R. Gossmann.
69 Epigastric Pain with Appendicitis. (Ueber die hyperazide Gastropathie appendicitischen Ursprungs.) S. Sollerl.
70 *Spinal-Cord Tumors. (Zur chirurgischen Therapie des intramedullären Rückenmarkstumor.) H. Oppenheim and M. Borchardt.
71 *Autoreinfection of Typhoid Bacilli Host. (Zur Auto-Reinfection des Typhusbacillenwirtes.) F. Kaspar.
72 *The So-Called Pleura Reflex. O. H. Petersen.
73 *Diagnosis of Mediastinal Disease. F. Siebert.

65. **Empyema in Course of Pneumonia.**—Gerhardt reports four cases of suppuration in the pleura early in the febrile stage of pneumonia, and yet the course of the disease did not seem to be aggravated by the empyema. The pneumonia ran the usual course. No micro-organisms could be found in the scanty pus. In a fifth case the empyema was much more extensive and avirulent pneumococci were found in the pus; convalescence was somewhat retarded in this case. This parapneumonic empyema tends to spontaneous absorption and probably has frequently escaped detection.

66. **Spontaneous Rupture of the Aorta.**—In the case reported a robust young man had been engaged for six years in exceptionally hard physical work and his heart had become hypertrophied from the strain; the abnormally extensive excursions of the diaphragm also cooperated in straining the aorta. The results were a sudden rupture of the aorta in the supposedly unusually sound and strong young man. In the second case necropsy showed rupture of the aorta in a middle-aged man at a point where there evidently had been an old and long healed lesion, probably a dissecting aneurysm of syphilitic origin.

67. **The Functional Importance of the Gall-Bladder.**—Rost's sixty-page article reports comprehensive experimental and anatomic research undertaken to determine to what extent the gall-bladder is necessary to the organism and what effects follow its removal. The absence of the gall-bladder does not seem to affect the metabolism directly but the conditions in regard to the passage of bile into the intestines vary according as the muscle at the papilla acts like a sphincter or not. When there is a long stretch of muscle at the papilla which is able to hold back the bile, [illegible] accumulates above and stretches the duct, making it a reservoir for the bile, like a new gall-bladder. This does not occur when the papilla muscle is incapable of sphincter action. The practical conclusion of the research is that it is wise to leave a portion of the cystic duct when removing the gall-bladder so that it may serve for a new gall-bladder in case the papilla should prove to be "continent."

68. **Tuberculous Gastric Ulcer.**—Gossmann states that he found indications of tuberculosis in 40 per cent. of 5,900 necropsies 1900-1912 at the Munich public hospital. There were signs of tuberculous ulceration in the stomach in only 0.31 per cent. of all the cadavers (0.76 per cent. of the tuberculous cases). A tuberculous ulceration was found in the duodenum near the pylorus in five other cases, and in another group of five there were ulcers both in the stomach and duodenum. There was chronic pulmonary tuberculosis in all the cases, and the stomach or duodenum lesions had not been diagnosed during life. The findings confirm the possibility of infection by way of the blood, the lymph, the mouth or by spreading from adjoining lesions.

70. **Spinal-Cord Tumors.**—Two cases are described in detail in the effort to throw light on the surgical possibilities with tumors originating in the spinal cord or invading it. The tumors in these cases were easily shelled out, but the spinal cord had already been injured to such an extent that most of the symptoms persisted unmodified. In one case, however, the patient was relieved from his agonizing pains by the operation, and had no further pain during the nine months he survived. In the other patient, a man of 70, the tumor was found hidden in the spinal cord; the first symptom over two years before had been a feeling of heat in the left foot, the whole leg finally feeling hot, while the left leg grew weak and finally paralyzed and girdle sensations gradually developed in the upper part of the abdomen and there was difficulty in urinating and finally incontinence of urine and obstinate constipation. The third dorsal vertebra was tender and the region was dull on percussion, but the tumor was found at the second dorsal segment, entirely within the spinal cord. The operation was followed by total flaccid paralysis with anesthesia, but the knee phenomena soon returned. The patient succumbed the fifth day to pneumonia; he had signs of emphysema and bronchitis prior to the operation.

71. **Autoreinfection with Typhoid.**—In Kaspar's case a boy of 10 was left with mild transient periostitis of the left tibia after typhoid. Five years later a similar process developed in the right thigh but healed in a few weeks. Two years later he applied for treatment of a similar process in the right tibia which had come on with a chill and fever. The boy, now 17, was given a test oil breakfast. This causes bile to enter the stomach, and from the bile thus obtained Kaspar was able to cultivate typhoid bacilli, as also from the blood and from the pus in the tibia lesion. The boy had not been exposed to typhoid recently and the case probably must be explained as an autoreinfection, running a very mild course without abdominal symptoms.

72. **The Alleged Pleura Reflex.**—Petersen reports the case of a young woman with symptoms of an abscess in the lung requiring operative treatment. A small amount of pus was aspirated from the pleura but the patient collapsed when the thermocautery was applied under local anesthesia. She revived readily but a pneumothorax was left and the fever kept persistently high. A week later several punctures were made but no pus could be found. The sputum showed traces of blood and the patient collapsed anew with all the signs that have been described as the pleura reflex, and she could not be resuscitated. The necropsy findings indicated that the trouble was due to injury by the puncture needle of some blood-vessel. This had permitted the entrance of air during inspiration and fatal air embolism was the result. Petersen is convinced that the so-called pleura reflex is probably in many cases in fact an air embolism.

73. **Disease in the Mediastinum.**—Siebert found on vertical orthodiagraphy that the diameter of the aorta averaged 2.6 cm. in twenty-six normal adults of all ages between 46 and 55, ranging from 2 to 3 cm. In seven others with signs of dilatation of the heart or vessel trouble the range was from 3.4 to 4.2 cm. The early diagnosis of beginning sclerosis or syphilitic dilatation of the aorta is thus possible by ascertain-

ing the diameter of the vessel. He also reports a case of nearly complete obliteration of the superior vena cava with development of collateral circulation between the superior and inferior vena cava, similar to a case published by Osler some years ago. Both patients had the characteristic sensation of constriction in the chest.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

October, XXXVIII, No. 4, pp. 383-502

74 No Proof of Injury to Liver Function during Pregnancy. M. Neu and F. Keller.
75 *Abderhalden's Biologic Test of Pregnancy. G. Wolff.
76 Indications and Contra-Indications for the Use of Hypophysis Preparations in Obstetric Cases. E. Puppel.
78 Abnormal Spontaneous Abortion causing Cervico-Vaginal Fistula. Bublitschenko.
79 *Complete Rupture of the Uterus. O. Nebesky.
80 Lithopedion Carried in the Mesentery for Twenty Years. L. Biener.

75. **Serodiagnosis of Pregnancy.**—Wolff describes his experiments with Abderhalden's method, resulting in failure at first until he learned from Abderhalden himself the exact technic for preparing the placenta. He concludes that the method shows pregnancy in its very beginning if the placenta is washed until it is absolutely free of blood and does not react with ninhydrin. Abderhalden's directions must be minutely followed. The serum to be used must not be allowed to stand more than four or five hours. The reaction is of special value for differential diagnosis between pregnancy and tumors. The test is not suited for general practice but has great value in hospitals where it can be performed often enough to ensure exact technic.

79. **Treatment of Complete Rupture of Uterus.**—Nebesky gives statistics and describes four cases to show the necessity for immediate operation for rupture of the uterus and the inadequacy of conservative treatment.

Münchener medizinische Wochenschrift

October 7, LX, No. 40, pp. 2209-2264

81 *Steeple Skull. (Der angeborene Turmschädel.) H. Küttner.
82 Disappointing Experiences with Thorium X in Leukemia. G. Rosenow.
83 *Electrotherapy in Blood Diseases. O. Veraguth and R. Seyderhelm. To be continued.
84 Treatment of Tuberculosis by the Deycke-Much Partial Antigens. G. Deycke and E. Altstaedt.
85 Rudimentary Eventration of the Diaphragm. R. Kienböck.
86 Comparison of Action of Uzara and Opium. O. Hirz.
87 *Tonsillectomy. (Die Technik der extrakapsulären Totalexstirpation der Tonsille.) G. Trautmann.
88 Roentgenotherapy of Uterine Myoma. A. Sippel.
89 *The Specificity of the Protective Ferments. (Tierexperimentelle Untersuchungen über die Organspezifität der proteolytischen Abwehrfermente—Abderhalden.) A. Fuchs.
90 *Serotherapy in Tetanus. A. Weber.
91 *Examination of the Urine. K. Rühl.
92 *Infusion of Blood in Treatment of Severe Anemia. Windesheim.
93 Radium in Therapeutics. F. Herrmann.

81. **Congenital Steeple Skull.**—Küttner explains this deformity as the result of the growing together of the bones of the skull before the normal time for ossification. In two cases he has encountered this occurred before the child was born, and the deformity has persisted unmodified. The children are now over a year old. The girl has several other deformities, cleft palate, etc. Meltzer found the steeple skull at birth only in one of twenty blind children with steeple skull. Twelve of the other children had an unusually tall skull at birth, but the actual deformity did not develop until the children were 1 to 6 years old; seven other children were normal at birth, and the skull assumed the steeple shape between the ages of 3 months and 3 years. Küttner has found in the literature only one case resembling the first he reports, with extreme exophthalmos from the shallowness of the orbits. The danger to the eyes is generally from atrophy of the optic nerve from compression. Decompressive trephining is indicated to prevent choked disk and atrophy; puncture, if there is an excess of fluid in the skull. Schloffer has proposed to enlarge the bony canal for the optic nerve in case of steeple skull, and he has done this in two clinical cases. One operation was done quite recently; the other patient seems to be somewhat improved. Of course, for children, this serious operation would be considered only after failure of a decompressive operation.

83. **Electric Influencing of the Leukocyte Picture.**—This is only the first instalment of Veraguth's article, but it states that the application of electricity in the cases reported was able to restore the abnormal leukocyte picture to approximately normal in a remarkably short time. The red corpuscles and a normal leukocyte blood-picture do not seem to be influenced, but an abnormal leukocyte picture changes at once for the better, as he shows by the blood-count in a case of secondary anemia, in three of lymphocytosis with exophthalmic goiter, six of lymphocytosis of other origins, two of myeloid leukemia, one of Werlhof's disease and two healthy controls. The electric current was of low tension and low intensity, and the sittings ranged from five to thirty minutes in length. In four cases of lymphocytosis the number of leukocytes dropped from 13,600 to 6,200; from 8,200 to 5,200; from 11,600 to 8,800 and from 12,600 to 11,200 under a fifteen-minute exposure, the reduction thus ranging from 1,400 to 7,400, while the proportion of lymphocytes was reduced by 4 up to 18 per cent. In one of the three exophthalmic goiter cases the leukocytes numbered 13,600, but dropped after a thirty-minute exposure to 5,900; two days later the leukocytes numbered 6,600, and dropped to 5,100 under a twenty-five minute exposure. The lymphocytes dropped during the two exposures from 43 to 31.5 per cent. and from 49.5 to 41 per cent. No further details as to technic are given in this instalment of the article.

87. **Technic for Tonsillectomy.**—Trautmann insists that the tonsil capsule should be removed with it, that is, the sheet of connective-tissue that encloses the tonsil on the outside. The portion of the tonsil toward the mouth extends beyond the capsule, which only covers the side. The front of the tonsil is covered with what he calls the prepuce; it shows up when the root of the tongue is depressed with a spatula. The anterior pillar of the soft palate starts from the tongue like a flag-staff and the prepuce spreads from it above like a flag on its standard. He gives several illustrations to show conditions and the advantages of obtaining access to the tonsil by a curving incision through this prepuce; this exposes the tonsil and also its capsule and permits the whole to be easily shelled out with the finger or a blunt instrument. He warns expressly against using a cutting instrument. The tonsil is taken out through the incision, not directly into the mouth; by this means all danger is avoided of injuring the veins. The vessels severed in the operation retract at once and as they slip back into the stout muscles forming the tonsil recess they become compressed so that there is no danger of hemorrhage. If there should be hemorrhage the tonsil cavity being so amply exposed by this technic renders it a comparatively easy matter to arrest the bleeding.

89. **The Specificity of the Abderhalden Protective Ferments.**—Fuchs reports experiments which confirmed the absolutely specific nature for the organ involved of the ferments demonstrated by the Abderhalden technic. The serum of rabbits treated with human kidney tissue was able to digest kidney tissue in eighty-eight hours while it did not digest liver tissue, and vice versa. He has also confirmed in further research the findings of others in regard to the specific digestion of testicle tissue by the serum of men with dementia praecox, and of ovary tissue in women, and never the reverse. Also the total absence of any digesting property for the ovaries or testicles in the serum of patients with depressive mania, and, further, the positive reaction in cancer cases. The reaction proved specific for the organ whether derived from human beings, calves or laboratory animals, and it was equally pronounced irrespective of the species.

90. **Serotherapy of Tetanus.**—Weber relates two cases to show the importance of giving antitetanus serum as early as possible, and keeping it up until the spasms have become much mitigated. Children seem to bear a large total dosage without harm. The first patient was a boy of 13, and he recovered under fourteen injections of the antitetanus serum, a total of 1,400 serum units.

91. **Examination of the Urine.**—Röhl uses the *two-glass* method and states that it frequently happens that the urine may seem perfectly limpid at first, but if it is set aside for a few minutes it becomes slightly turbid. Consequently he advises waiting for fifteen minutes up to an hour before passing final judgment on the urine.

92. **Treatment of Pernicious Anemia.**—Windesheim states that prompt improvement followed intragluteal injection of 10 c.c. of still warm human blood at intervals of ten or fifteen days. The patient was a woman of 52, with signs of pernicious anemia, entire loss of appetite and repeated vomiting. Seven injections of the blood were made in the course of four months, and the blood regained nearly its normal composition and the patient now feels well and comparatively strong.

Therapeutische Monatshefte, Berlin

October, XXVII, No. 10, pp. 685-756

94 *Lime Salts in Therapeutics. (Zur *Pharmakotherapie* mit anorganischen Kalksalzen.) R. von den Velden.
95 Hormonal. F. A. Hesse.
96 Congenital Syphilis. E. Müller.
97 Massage and Graduated Exercises in Kidney Disease. (Mechanotherapie bei Nierenerkrankungen.) F. Kirchberg.
98 **Tuberculin Treatment for Children.* Eckert.
99 *Occult Blood in the Stools during Lenhartz Gastric Ulcer Diet. G. Queisser.
100 *Warning against *Catgut Alone for Suturing Abdominal* Fascia. O. Müller.
101 Legal Decisions on Nostrums. (Juristisches über den Heilmittelschwindel.) W. Heubner.
102 The Work of the Council on Pharmacy and Chemistry of the A. M. A. W. Heubner.

94. **Lime in Therapeutics.**—Von den Velden limits his discussion of this subject here to the action of calcium salts on the endothelium of the vessels and on the coagulation of the blood. He gave patients 1 gm. tablets of calcium lactate up to a total dosage of 4 or 6 gm. a day. To a few others he gave calcium chlorid 0.5 gm. three times a day. In a few cases he gave the lime by intravenous injections of a 5 per cent. solution of calcium chlorid. His experience has demonstrated that the calcium enhances the coagulating power of the blood and also renders the morbidly permeable vessel walls less permeable. The latter effect is strikingly evident in hemorrhagic affections, such as scorbutus; the calcium renders the vessel walls less porous. This hemostatic effect therefore can be anticipated only in case of bleeding by diapedesis. It is unfortunate that the absorption of the calcium salts depends on a variety of factors, especially on good gastric secretion and on the absence of fermentation acids in the intestine. He detected the abnormal permeability of the vessels responsible for the rebellious scorbutus hemorrhages in one case by applying a cupping glass for five minutes. The vacuum glass drew blood just the same after two weeks of the ordinary measures. Then he gave the man 3 gm. a day of calcium lactate for five days after which the cupping glass no longer drew blood, and complete recovery followed in three weeks of the same treatment. He also found calcium lactate useful in two cases of iodin poisoning from a course of potassium iodid. A further useful application of the calcium lactate is in curing the cutaneous manifestations of anaphylaxis. In pleurisy with effusion the fact that the calcium renders the vessel walls less pervious has an unfavorable side, as this checks absorption. The calcium is indicated, therefore, only when the effusion constantly recurs after puncture. When the walls of the pleura are severely modified by chronic inflammation, the calcium will naturally have no effect. He found that animals developed cachexia when given calcium salts over a long period. In fifteen cases of hemorrhagic nephritis the results of the calcium medication were conflicting. No pronounced favorable results were obtained in any case and the condition was aggravated in some.

98. **Tuberculin Treatment of Tuberculosis in Children.**—Eckert warns that the tuberculin may arouse slumbering tubercle bacilli and drive them out of their latent focus into the blood stream. This would be disastrous as children have less resisting powers than adults in respect to tubercle bacilli. The only technic for tuberculin treatment for children is to keep the doses so small that no reaction is elicited in the focus. The aim is not to cure the tuberculosis but to enhance the resisting powers so that the child single-handed can conquer the disease.

99. **Occult Blood in Stools on Gastric-Ulcer Diet.**—Queisser found blood with the Weber test in 20 per cent. of forty persons free from gastro-intestinal ulceration but fed with the Lenhartz gastric-ulcer diet. The chopped meat in this diet was evidently responsible for the positive findings.

100. **Warning Against Catgut for Suturing Abdominal Fascia.**—Müller used catgut to suture the abdominal wall after removing an ovarian cyst in a woman who proved to be coming down with typhoid. The wound healed by primary intention, but the ninth day it opened its entire length with eventration of most of the intestine. The catgut had evidently been absorbed too soon; the fever may have hastened the absorption. The woman, a Chinese, recovered with no signs of peritonitis.

Therapie der Gegenwart, Berlin

October, LIV, No. 10, pp. 433-480

103 *Gastric Achylia. A. Albu.
104 *Treatment of Obesity. A. Kimmerle.
105 Experiences with Thorium X. J. v. Benczur.
106 Inoperable Rectum and Esophagus Cancers Treated with Mesothorium. S. Meidner.
107 Present Status of Mercury in Therapeutics. (Quecksilbertherapie.) M. Joseph.

103. **Gastric Achylia.**—Albu has encountered seven families in which a parent and child presented evidence of an inherited tendency to gastric achylia. He calls this type the aplastic form as it is evidently the result of defective development. It is one of the most characteristic signs of the neuropathic constitution. He warns that this aplastic gastric achylia should be suspected when older children exhibit chronic disturbances in digestion and nutrition. He urges pediatrists to make a special physiologic analysis of such cases with the more modern means of investigation, testing separately the functioning of the stomach, pancreas and intestine. This form of achylia may be regarded as on the same clinical plane as orthostatic albuminuria. The achylia may manifest itself by acute disturbances which in turn may yield to normal conditions. He has had five cases of this kind. One patient, a nervous young merchant, has had three such attacks in the last two years; periods of hyperchlorhydria have also been observed during this period. The trouble is probably a transient exhaustion of a functionally weak gastric mucosa. Such patients do particularly well on a purely vegetable diet, the food all served in the most finely divided form in purées. By dropping meat from the diet for four or six weeks, the bacterial flora in the intestines is transformed. Yoghurt may prove useful; sweet milk is generally badly borne. Cutting out the meat from the diet is particularly beneficial when the pancreas secretion is also below par; fat should also be restricted in this case. Veal and chicken meat in the form of a jelly are appetizing additions to the diet. Hydrochloric acid and pancreas preparations may be needed symptomatically and may have to be kept up for years, suspending them for a time every month.

104. **Treatment of Obesity.**—Kimmerle reports four cases in which a modified Karell course of dieting answered the purpose most admirably. One patient lost 13.6 kilograms in six weeks under it, and by keeping up the restrictions for the year, had her weight further reduced by 42.2 kgm., nearly 109 pounds. The first five days only 200 c.c. of milk was allowed, the patient keeping in bed. Then small amounts of meat and bread were permitted and after six weeks the diet was regulated to keep below 10.5 gm. nitrogen and later below 12 gm. nitrogen. She did not suffer materially from thirst or hunger, and none of the patients showed any injury from this low nitrogen intake.

Wiener klinische Wochenschrift, Vienna

October 9, XXVI, No. 41, pp. 1645-1688

108 *Carcinoma and Radium. G. Riehl.
109 *Radium Treatment of Uterine Cancer. E. Wertheim.
110 *Radium in Gynecology. H. Peham.
111 *Radium in Treatment of Cancer. E. Ranzi, H. Schüller and R. Sparmann.
112 *Radium Treatment in Surgery and Dermatology. F. Dautwitz.
113 Experimental Cancer Research. F. Keysser.

108 to 112. Radium in Treatment of Malignant Tumors.—Radium was the main topic of interest at the recent German "Naturforscher Congress," which was held at Vienna this year. The clinicians connected with the university of Vienna have more radium at their disposal than any one else, the faculty now having 1.5 gm. of the radium element. Riehl reported the results attained with radium treatment of cancer at the public hospital. Wertheim the results in treatment of uterine cancer, Peham the results in the gynecology clinic, others presenting a report on the experiences with radium in fifty-three cancer cases at von Eiselsberg's surgical clinic, while Dautwitz reported from St. Joachimsthal his results with twenty-one radium capsules as applied in hundreds of cases of various surgical and dermatologic affections. This testimony shows that the wave of overenthusiasm for radium treatment of malignant disease is already subsiding, and a more rational judgment is taking its place, and the possible dangers in its use are becoming recognized.

Riehl emphasized the importance of uniform terms and standards for comparison of the strength and effects of the radium. He ascribes the action of radium on cancer tissue to the fact that the cancer cells, being degenerated, succumb more readily to the rays than sound tissue. In time and with sufficient dosage the sound tissue is influenced also in the same way. He never noticed anything that indicated an indirect action from the radium on adjoining or remote tissues, lymph-nodes, etc. His experimental research demonstrated that the exposures affected the blood; small doses induced leukocytosis, while large doses reduced the number of leukocytes until they disappeared entirely from the blood. In small animals the spleen also disappeared and other injuries were noted, demonstrating the possibility of serious damage in the clinic from prolonged and intense exposure to radium. Some of his patients exhibited vertigo, vomiting, agitation, bad pulse and collapse after intensive radium exposures, suggesting that certain organs or the entire organism had suffered under the influence of the rays. His experience warns further that inadequate doses and too brief exposures have an actual stimulating action on the malignant disease.

Wertheim's experience has convinced him that in the cases which responded favorably to the radium treatment, ordinary measures would have answered the same purpose equally well. Some of his patients evidently suffered from the influence of the radium, becoming emaciated and weak, with weakness of the heart, headaches, sleeplessness, disturbance in bladder and intestine functioning and local pains. It is his impression that preceding radium exposures render more difficult the removal of the growth later.

The reports from the Eiselsberg clinic state that removal of the cancer should be the rule, but that radium or the Roentgen rays are indispensable after the operation to act on any cancer cells that have escaped the knife.

Zentralblatt für Chirurgie, Leipsic

October 11, XL, No. 41, pp. 1585-1624

114 Resection of Cardial Segment of Esophagus for Cancer. E. Bircher.
115 Partial Pneumothorax Always Left after Closure of Wound in the Thorax under Differential Pressure. H. Burckhardt and L. Dreyer.

Zentralblatt für Gynäkologie, Leipsic

October 11, XXXVII, No. 41, pp. 1501-1548

116 Examination of Vagina in Little Girls. M. Stolz.
117 Hypophysis Extract with Placenta Praevia. E. Herz.

Zentralblatt für innere Medizin, Leipsic

October 11, XXXIV, No. 41, pp. 1025-1048

118 Slight Diagnostic Import of Albumin in the Sputum. (Eiweiss im Sputum Lungenkranker.) A. Schneider.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 7, XXXIV, No. 120, pp. 1255-1262

119 *Tuberculous Gastric Tumor. (Tubercolosi dello stomaco a forma neoplastica.) O. Ortali.

119. Tuberculous Tumor in the Stomach.—Ortali's patient was a farmer of 52 who had had stomach trouble for six months, eructations, pain an hour or two after eating, and vomiting every two or three days soon after eating. No blood had been noticed in the stools or vomit. There was slight evening temperature, no cough or night sweats, but diarrhea and constipation alternated and the man grew very thin. Lactic acid but no free hydrochloric acid was found in the stomach content and the stomach was opened on suspicion of cancer. The pylorus region was found the seat of a hard tumor studded with granulations. Gastro-enterostomy relieved the patient of his disturbances, but he succumbed two months later to peritonitis. Ortali knows of only twenty-four cases on record of this tumor form of tuberculosis of the stomach.

Policlinico, Rome

October 5, XX, No. 40, pp. 1433-1468

120 Suture of Kidney after Nephrotomy. E. Tarozzi.
121 Intravenous Injection of Iodoform in Pulmonary Tuberculosis and Pneumonia. A. Cerioli.

Riforma Medica, Naples

October 4, XXIX, No. 40, pp. 1093-1120

122 Transverse Myelitis Secondary to Cancerous Degeneration of Persisting Thymus. A. Roccavilla. Commenced in No. 38.

Rivista Ospedaliera, Rome

September 30, III, No. 18, pp. 789-836

123 *Chronic Appendicitis with No Acute Phase; G. Bolognesi
124 Primary Sarcoma in the Jejunum-Ileum. A. Di Bartolo.

123. Chronic Appendicitis Without Acute Phase.—Bolognesi insists that appendicitis may develop with merely slight disturbances, nothing more than vague gastro-intestinal pains, dyspepsia and constipation. In time, however, the chronic inflammation entails changes in the appendix similar in every respect to those of ordinary appendicitis with one or several acute phases. He found this to be the case in four of twenty cases of chronic appendicitis reported; nothing had been known of an acute attack in any instance.

Pediatria, St. Petersburg

IV, No. 1, pp. 1-89

125 *Hemorrhage from the Uterus in New-Born Infants. (Metrorhagia neonatorum.) S. K. Gogitidze. Concluded in No. 2.
126 Serotherapy in Scarlet Fever. (104 slutchaia primienenia Moser'ovskoe sivorotki pri skarlatinie.) Generopitomzeff.

No. 2, pp. 90-172

127 *Pneumonia in Children. D. A. Sokoloff. Concluded in No. 3.
128 *Tuberculosis of Pulmonary Lymph-Nodes and Spine Mistaken for Croup. (Oshibotchni diagnos croupa u dietei.) M. A. Michaelovitch. Concluded in No. 3.
129 *Specific Skin Reaction to Mustard in Children with the Exudative Diathesis. E. I. Rachmilevitch.

No. 3, pp. 173-256

130 *Diphtheria Bacilli in Chronic Carriers. N. I. Lunin.
131 The Elements of the Blood. (III-i i IV-i elementi krovi.) P. P. Eminet.

No. 4, pp. 257-335

132 *The Thyroid in Scarlet Fever. (Izmienenia shtchitovidnoi zhelezi pri skarlatinie u dietei.) K. Z. Gregor.
133 *Leiner's Desquamating Erythrodermia. E. D. Zvenigorodsky.
134 Means to Reduce Infant Mortality. V. Varshavsky.

125. Hemorrhage from the Uterus in the Newborn.—Gogitidze does not consider the hemorrhage in infants as a pathological occurrence because the uterus of the newborn undergoes a reaction followed by enlargement of this organ, hyperemia and hemorrhages. In some cases the physiological hyperemia is intense, ending in hemorrhage. This condition must be differentiated from precocious menstruation which is a periodical discharge of blood in very young children, accompanied by premature development of the sexual organs. The metrorrhagia does not occur periodically, usually lasts about forty-eight hours, and disappears without treatment. In his four cases there was no history of sepsis, ulcers, melena, endometritis, or any gastro-intestinal disorder. (The views of Gogitidze are criticized by Joukovsky in an article published later in *Pediatria*, p. 474.) Joukovsky regards the hemorrhage as a pathologic phenomenon, stating that it never occurs in healthy children, only in those suffering from gastro-intestinal disorders. He adds that it is not rare by any means; he has observed it in more than fifty cases.

127. Acute Pneumonia in Children.—As the views in regard to classification of pneumonia in children are not the with different authors. Sokoloff gives a review of the li ature on this question and his own views based on rich clinical and pathologic material. In the diagnosis of pneumonia, in each case, the lobe or lobule should be recorded, on which side, then the character of the exudation (catarrhal, fibrinous or both), finally the etiologic factor (diplococcus, streptococcus, staphylococcus, influenza, measles, pneumonia, etc.). When all the data are thus recorded a complete idea of the morbid process may be gained; the course and prognosis can then be outlined, etc. In other words, the whole character of the disease can be easily determined and understood if the above points are uniformly recorded.

128. **Tuberculosis of Pulmonary Lymph-Nodes and Spine Mistaken for Croup.**—Symptoms of stenosis of air passages may be caused by pressure of tuberculous bronchial lymph-nodes, and it is very important to differentiate stenosis of this kind due to outside pressure and not mistake it for croup. Michaelovitch discusses this question from various points of view, including the etiologic, bacteriologic, pathologic, anatomic, clinical, the course, etc. He comes to the conclusion that frequently, especially when the case is urgent, the differential diagnosis can be partly guessed from the general appearance of the patient, his history, percussion, auscultation, etc., but mainly from the fact that in stenosis from tuberculosis the dyspnea or stenotic respiration occurs during both inspiration and expiration, while in croup it is inspiratory alone. The stridor may increase from crying, coughing, etc., and closely resemble that in laryngeal diphtheria. As it is impossible in an urgent case to exclude diphtheria, he recommends as a prophylactic measure intubation and injection of antitoxin. Later, exact differentiation can be made through proper clinical, bacteriologic and especially roentgen-ray examinations.

129. **Specific Skin Reaction to Mustard in Children with the Exudative Diathesis.**—Rachmilevitch has been studying in children the so-called exudative diathesis with which there are lesions in the skin, mucous membranes or lymphatic tissues. Here belong seborrhea, intertrigo, recurring bronchitis, asthma, lymphatic states (enlarged tonsils, enlarged spleen), etc. When the symptoms are not pronounced, it is hard or almost impossible to diagnose the existing tendency, the exudative diathesis. In these dubious cases Rachmilevitch found a new method of diagnosis. The skin of the arm, for instance, is scarified, and a paste containing mustard is rubbed into the scarifications, and bandaged. While healthy children will show probably more or less redness on the places of irritation, children with the morbid diathesis will show within half an hour after the irritation a white blister surrounded by a hyperemic area which persists for fourteen or eighteen days. Serum in the form of small drops will appear, not coagulating before two hours. All these phenomena, the formation of the vesicle, the serous exudation, the retarded coagulation, constitute a positive reaction. This reaction occurs not only in children with clearly developed symptoms of the exudative diathesis, but also in those in whom the symptoms are hardly manifest, or in whom only one sign is present. Children who are perfectly healthy, or who do not show any signs of the exudative diathesis, give a negative reaction. From study of 100 cases Rachmilevitch comes to the conclusion that the described test is a very reliable means for determining occult types of the exudative diathesis. Czerny has confirmed the differential importance of this test, he states in conclusion.

130. **Chronic Diphtheria Bacilli Carriers.**—Lunin found that in 708 cases of diphtheria only 1.1 per cent. gave rise to "return cases." The patients were discharged after three bacteriologic examinations of the mucus from the throat and nose had given negative results. He also found that the bacilli that occur in healthy people or remain unusually long in those who have had an attack of diphtheria, are not virulent, and are thus harmless. They may accordingly be sent home or left among other patients; the only precaution he recommends is to gargle the throat and clean the teeth.

132. **The Thyroid in Scarlet Fever.**—Gregor studied twenty-one cases of scarlet fever in regard to changes caused by this disease in the thyroid gland. It was studied at various stages of the disease (second day to twenty-seventh day), and the findings were compared with those found in the thyroid gland during catarrhal pneumonia, chronic enterocolitis, measles, etc. Böhmer's hematoxylin and the Van Giesen stain were used. The findings showed that the thyroid is considerably involved in scarlet fever, especially the vessels and the parenchyma itself; the colloid substance decreases according to the duration of the disease. He frequently found numerous bacteria emboli, which speaks for bacterial thyroiditis in scarlet fever superposed on a toxic irritation. The thyroiditis may entail later actual thyroid disease, such as exophthalmic goiter. The clinical manifestations of the scarlatinal thyroiditis are not known, as it is hard to trace them in children.

133. **Case of Leiner's Desquamating Erythrodermia.**—Zvenigorodsky differentiates this affection from similar skin lesions in infants, defining it as a general dermatosis with diffuse reddening of epidermis and formation of scales and scabs. No symptoms of Czerny's exudative diathesis were apparent in the case reported. The peculiar feature of this disease is the presence of gastro-intestinal disorders with breast-feeding. Auto-intoxication is looked on as the cause, as in his case the mother had suppurative mastitis. As this healed the gastro-intestinal disturbance in the child, as well as his skin disease, disappeared.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXIV, No. 10, pp. 1305-1448

135 Invasion of Human Beings by Parasites of Animals. (Fund av en del dyreparasiter hos mennesker.) F. Harbitz.
136 Elimination of Formaldehyd in the Urine after Administration of Hexamethylenamin. A. Brinchmann.
137 *Osteomalacia; Two Cases. K. Brandt.
138 Induced Premature Delivery with Contracted Pelvis. N. Kahrs.
139 Another Case of Acute Dilatation of the Stomach. (Akut ventrikelektasi.) Bretteville-Jensen.
140 Ferric-Chlorid Urine Reaction and Impending Diabetic Coma. (Om den Gerhardt'ske jernkloridreaktion, og om hvilke holdepunkter man har til bedømmelse av faren for at der skal indtræde et coma diabeticum.) H. C. Geelmuyden.

137. **Osteomalacia.**—Brandt describes a case of severe osteomalacia in a ii-para of 32. Symptoms were first noticed two years after her first child was born; her limbs seemed weak and the condition became aggravated during her second pregnancy and later; by the sixth year she presented the extreme type of osteomalacia. The ovaries were then removed and slight improvement was at once evident, but the patient died in a few days; necropsy was not permitted. In a second case the osteomalacia developed during a first pregnancy and grew worse during a second and third pregnancy, letting up in the intervals. Supravaginal amputation of the uterus was done a month before term and the woman seemed to have quite recovered from the osteomalacia when she left the hospital seven weeks later. Brandt states that he knows of only five other cases of osteomalacia that have been published in Norway. He analyzes the total seven and remarks that ovariectomy must be regarded as the specific treatment for it.

Ugeskrift for Læger, Copenhagen

September 25, LXXV, No. 39, pp. 1599-1622

141 *End-Results of Treatment of Genital Prolapse. S. A. Gammeltoft.

141. **Genital Prolapse.**—Gammeltoft was able to learn the history to date of 132 of 150 patients who were given operative treatment for genital prolapse since 1900. Six of the total patients died in connection with the operation, and six have died since. The ultimate outcome to date is thus known in 127 cases; conditions are entirely satisfactory in eighty-one of the patients; seventeen patients have no subjective disturbances but the anatomic condition is not perfect, or else the anatomic condition is satisfactory but there are slight subjective symptoms. The prolapse recurred in twenty-four other cases. In three other cases conditions are excellent in every respect except that the cervix has become hypertrophied. In the two remaining cases the prolapse recurred after a severe fall or difficult forceps delivery. In regard to the operative technic, he says that scarcely any condition requires individualizing to such an extent; the combined vaginal and abdominal method is certainly great progress.